#### Figure 1

1 atgtcacgta ttggtaataa agtaattact atgcctgcag gcgttgaatt aacaaataac 61 aacaatgtta ttactgttaa aggccctaaa ggcgaactca ctcgtgagtt caacaaaaat 121 attgaaatca aagttgaagg gactgaaatc acagttgtac gtcctaacga ctcaaaagaa 181 atgaaaacaa tccatggtac aacccgtgct aacttgaata acatggttgt aggtgttct 241 gaaggtttca aaaaagatct tgaaatgaag ggtgtcggtt accgtgctca acttcaaggt 301 actaaacttg tcctttcagt aggtaaatct caccaagacg aagttgaagc tccagaagga 361 attactttca ctgttgctaa cccaacttca atctcagttg aaggaatcaa caaagaagtt 421 gttggtcaaa cagctgctta catccgtagc ttgcgttcac cagagcctta caaaggcaaa 481 gggatccgtt acgttggtga atacgtacgc cttaaagaag gtaaaacagg taaataa (SEQ ID NO: 1)

#### Figure 2

1 MSRIGNKVIT MPAGVELTNN NNVITVKGPK GELTREFNKN IEIKVEGTEI TVVRPNDSKE 61 MKTIHGTTRA NLNNMVVGVS EGFKKDLEMK GVGYRAQLQG TKLVLSVGKS HQDEVEAPEG 121 ITFTVANPTS ISVEGINKEV VGQTAAYIRS LRSPEPYKGK GIRYVGEYVR LKEGKTGK (SEQ ID NO: 2)

#### Figure 3

1 atgtttcagt taagaaaaaa aatgacgcgc aaacaattag ccttgttgag tgctggagtg 61 ttgacctgtg tggttggtgg tagctacttg ataatgaacc atcaacaaca agaaattgtc 121 tctaqtqtca acaaaqtaaa aqccttaacc ataaaagaag ccatggaaca aggaaaagat 181 atcagcttga ccttagctgg cgaagtaaca gctaacaaca gcagcaaagt caaaatcgac 241 tcaagtaaag gagaagtcaa agaggtcttt gttaaaaaag gcgatgttgt caaagtagga 301 caaccettgt ttagetatga aacgtcacag cggttaacgg ctcaaagttc agaatttgat 361 gttcaaacca aagccaatca gctccaagtt gctaaaacca atgcagcatt gaagtgggaa 421 acctacaatc gcaaggtcaa tgaaatcaac accctaaaat ctcgctacaa cactgcacca 481 gatgagaget tactagagea aattegeage geagaagaea gtgtateeea ageaetaage 541 gatgccaaaa cagcagatag cgatgtcaaa accgctcaaa tcgaactcga taaagctaat 601 gctactgcca caacggaaaa aggtaaacta gagtatgaca ccgttaagtc agacaccgca 661 ggaaccattg ttagtctaaa tactgatttg ccaaatcaat caaaatccaa aaaagaaaat 721 gaaactttta tggaaattat cgacaaatca aaaatgttag tcaaaggtaa cattagtgaa 781 tttgaccgtg acaagttaaa aatcggtcaa aaagtcgaag tgattgaccg caaagacaac 841 tctaaaaaat ggactggaaa agtaacccaa gttggcaacc tcaaagcaga ggaaaaaggc 901 caaggtcaag gccaaggtgg caatgaccaa caagataatc caaaccaagc aaaattccct 961 tatgttattg aacttgacca atcagacaag cagccactca ttggctcaca cacctatgtt 1021 aatqtqctca acaatqttcc agaagctggc aagatcgtat tgaaagaaac ctttacaatg 1081 gcagaaaatg gaaaaaccta tgtgtggaaa gttgataaaa acaaggtcaa aaaacaagaa 1141 atcaagacta agccettete aaaaggttat gttgaggtaa caagtggett gactatgeaa 1201 gataagattg ctcagccgct tcctggcatg aaagacggta tggaggtagg aagtattgtt 1261 aaaccttaa (SEQ ID NO: 3)

#### Figure 4

1 MFQLRKKMTR KQLALLSAGV LTCVVGGSYL IMNHQQQEIV SSVNKVKALT IKEAMEQGKD
61 ISLTLAGEVT ANNSSKVKID SSKGEVKEVF VKKGDVVKVG QPLFSYETSQ RLTAQSSEFD
121 VQTKANQLQV AKTNAALKWE TYNRKVNEIN TLKSRYNTAP DESLLEQIRS AEDSVSQALS
181 DAKTADSDVK TAQIELDKAN ATATTEKGKL EYDTVKSDTA GTIVSLNTDL PNQSKSKKEN
241 ETFMEIIDKS KMLVKGNISE FDRDKLKIGQ KVEVIDRKDN SKKWTGKVTQ VGNLKAEEKG
301 QGQGQGGNDQ QDNPNQAKFP YVIELDQSDK QPLIGSHTYV NVLNNVPEAG KIVLKETFTM
361 AENGKTYVWK VDKNKVKKQE IKTKPFSKGY VEVTSGLTMQ DKIAQPLPGM KDGMEVGSIV
421 KP
(SEQ ID NO: 4)

### Figure 5

atgataaac gatgtaaagg aattggtcta gccttaatgg ccttctttt ggtagcttgt
fl gtgaatcage accctaaaac ggctaaagag actgaacage agagaattgt agccacttcg
fl gttgctgtgg ttgatatctg tgaccgttta aatttagace tcgttggggt ttgtgatagt
fl aaattatata cccttcctaa acgctatgat gctgttaage gtgtgggttt acccatgaat
fl cctgatatag agttgattge ttctttgaaa ccaacttgga ttttgagtce caattctta
fl caagaagatt tggaacccaa gtatcaaaaa ttggatactg agtatggttt tttgaactta
fl caagaagtgt agggcatgta ccagtcatt gatgatttag ggaacctttt caacacgtcaat
fl caagaaggaa aagaattgeg ccagcaatae caggactatt atcgtgettt aggaacctat
fl gtggcgacga accaatcta tgtagggaat cttttggact atctatagg
fl tatcagtcag atgagaaaga atttctatca gctaatcetg aggaactgtt
fl tatcagtcag accaatcta tgtagggaat cttttggact aggaaatgtt
fl tatcagtcag accaatcta aggaaaga atttctatca gctaatcetg aggaactgtt
fl tatcagtcag accaatcta tgtaggaat cttttggact aggaactgt
fl tatcagtcag accaatcta tattggaaa cattttacgg aggaactgt
fl tatgatttgg acaatacct gtttggcatg agtgctaaat tgaaccacg agggaaagtc
fl tatgatttgg acaatacct gtttggcatg agtgctaaat tgaaccacc aggagtctg
fl tatgatttgg acaatacct gtttggcatg agtgctaaat tgaaccacc aggagaagtc
fl NO: 5)

#### Figure 6

- 1 MIKRCKGIGL ALMAFFLVAC VNQHPKTAKE TEQQRIVATS VAVVDICDRL NLDLVGVCDS
  61 KLYTLPKRYD AVKRVGLPMN PDIELIASLK PTWILSPNSL QEDLEPKYQK LDTEYGFLNL
  121 RSVEGMYQSI DDLGNLFQRQ QEAKELRQQY QDYYRAFQAK RKGKKKPKVL ILMGLPGSYL
  181 VATNQSYVGN LLDLAGGENV YQSDEKEFLS ANPEDMLAKE PDLILRTAHA IPDKVKVMFD
- 181 VATNQSYVGN LLDLAGGENV YQSDEKEFLS ANPEDMLAKE PDLILRTAHA IPDKVKVMFI 241 KEFAENDIWK HFTAVKEGKV YDLDNTLFGM SAKLNYPEAL DTLTQLFDHV GDHP
- (SEQ ID NO: 6)

#### Figure 7

- 1 atgtcacgta ttggtaataa agtaattact atgcctgcag gcgttgaatt aacaaataac 61 aacaatgtta ttactgttaa aggccctaaa ggcgaactca ctcgtgagtt taacaaaaat 121 attgaaatca aagttgaagg gactgaaatc acagttgtac gtcctaacga ctcaaaagaa 181 atgaaaacaa tccatggtac aacccgtgct aacttgaata acatggttgt aggtgttct 241 gaaggtttca aaaaagatct tgaaatgaag ggtgtcggtt accgtgctca acttcaaggt 301 actaaacttg tcctttcagt aggtaaatct caccaagacg aagttgaagc tccagaagga 361 attactttca ctgttgctaa cccaacttca atctcagttg aaggaatcaa caaagaagtt 421 gttggtcaaa cagctgctta catccgtagc ttgcgttcac cagagcctta caaaggcaaa 481 gggaatcagt acgttggtga atacgtacgc cttaaagaag gtaaaacagg taaaataa
- (SEO ID NO: 21)

#### Figure 8

/ 1

- 1 MSRIGNKVIT MPAGVELTNN NNVITVKGPK GELTREFNKN IEIKVEGTEI TVVRPNDSKE
- 61 MKTIHGTTRA NLNNMVVGVS EGFKKDLEMK GVGYRAQLQG TKLVLSVGKS HQDEVEAPEG
- 121 ITFTVANPTS ISVEGINKEV VGQTAAYIRS LRSPEPYKGK GIRYVGEYVR LKEGKTGK
- (SEQ ID NO: 22)

#### Figure 9

1 atgtcacgta ttggtaataa agtaattact atgcctgcag gcgttgaatt aacaaataac 61 aacaatgtta ttactgttaa aggccctaaa ggcgaactca ctcgtgagtt taacaaaaat 121 attgaaatca aagttgaagg gactgaaatc acagttgtac gtcctaacga ctcaaaagaa 181 atgaaaacaa tccatggtac aacccgtgct aacttgaata acatggttgt aggtgttct 241 gaaggtttca aaaaagatct tgaaatgaag ggtgtcggtt accgtgctca acttcaaggt 301 actaaacttg tcctttcagt aggtaaatct caccaagacg aagttgaagc tccagaagga 361 attactttca ctgttgctaa cccaacttca atctcagttg aaggaatcaa caaagaagtt 421 gttggtcaaa cagctgctta catccgtagc ttgcgttcac cagagcctta caaaggcaaa 481 gggatccgtt acgttggtga atacgtacgc cttaaagaag gtaaaacagg taaataa (SEQ ID NO: 23)

#### Figure 10

1 MSRIGNKVIT MPAGVELTNN NNVITVKGPK GELTREFNKN IEIKVEGTEI TVVRPNDSKE 61 MKTIHGTTRA NLNNMVVGVS EGFKKDLEMK GVGYRAQLQG TKLVLSVGKS HQDEVEAPEG 121 ITFTVANPTS ISVEGINKEV VGQTAAYIRS LRSPEPYKGK GIRYVGEYVR LKEGKTGK (SEQ ID NO: 24)

#### Figure 11

1 atgtcacgta ttggtaataa agtaattact atgcctgcag gcgttgaatt aacaaataac 61 aacaatgtta ttactgttaa aggccctaaa ggcgaactca ctcgtgagtt caacaaaaat 121 attgaaatca aagttgaagg gactgaaatc acagttgtac gtcctaacga ctcaaaagaa 181 atgaaaacaa tccatgggac aacccgtgct aacttgaata acatggttgt aggtgttct 241 gaaggtttca aaaaagatct tgaaatgaag ggtgtcggtt accgcgctca acttcaaggt 301 actaaacttg tcctttcagt aggtaaatct caccaagacg aagttgaagc tccagaagga 361 attactttca ctgttgctaa cccaacttca atctcagttg aaggaatcaa caaagaagtt 421 gttggtcaaa cagctgctta catccgtagc ttgcgttcac cagagcctta caaaggcaaa 481 gggatccgtt acgttggtga atacgtacgc cttaaagaag gtaaaacagg taaataa (SEQ ID NO: 25)

#### Figure 12

1 MSRIGNKVIT MPAGVELTNN NNVITVKGPK GELTREFNKN IEIKVEGTEI TVVRPNDSKE
61 MKTIHGTTRA NLNNMVVGVS EGFKKDLEMK GVGYRAQLQG TKLVLSVGKS HQDEVEAPEG
121 ITFTVANPTS ISVEGINKEV VGQTAAYIRS LRSPEPYKGK GIRYVGEYVR LKEGKTGK
(SEQ ID NO: 26)

#### Figure 13

1 atgtcacgta ttggtaataa agtaattact atgcctgcag gtgttgaatt aacaaataac 61 aacaatgtta ttactgttaa aggccctaaa ggcgaactca ctcgtgagtt caacaaaaat 121 attgaaatca aagttgaagg gactgaaatc acagttgtac gtcctaacga ctcaaaagaa 181 atgaaaacaa tccatggtac aacccgtgct aacttgaata acatggttgt aggtgttct 241 gaaggtttca aaaaagatct tgaaatgaag ggtgtcggtt accgtgctca acttcaaggt 301 actaaacttg tcctttcagt aggtaaatct caccaagacg aagttgaagc tccagaagga 361 attactttca ctgttgctaa cccaacítca atctcagttg aaggaatcaa caaagaagtt 421 gttggtcaaa cagctgctta catccgtagc ttgcgttcac cagagcctta caaaggcaaa 481 gggatccgtt acgttggtga atacgtacgc cttaaagaag gtaaaacagg taaataa (SEQ ID NO: 27)

PCT/CA2004/001510 WO 2005/017093

#### Figure 14

1 MSRIGNKVIT MPAGVELTNN NNVITVKGPK GELTREFNKN IEIKVEGTEI TVVRPNDSKE 61 MKTIHGTTRA NLNNMVVGVS EGFKKDLEMK GVGYRAQLQG TKLVLSVGKS HQDEVEAPEG 121 ITFTVANPTS ISVEGINKEV VGQTAAYIRS LRSPEPYKGK GIRYVGEYVR LKEGKTGK (SEQ ID NO: 28)

#### Figure 15

1 atgtttcagt taagaaaaaa aatgacgcgc aaacaattag cettgttgag tgctggagtg 61 ttgacctgtg tggttggtgg tagctacttg ataatgaacc atcaacaaca agaaattgtc 121 tctagtgtca acaaagtaaa agccttaacc ataaaagaag ccatggaaca aggaaaagat 181 atcagcttga ccttagctgg cgaaqtaaca gctaacaaca gcagcaaaqt caaaatcgac 241 tcaagtaaag gagaagtcaa agaggtcttt gttaaaaaag gcgatgttgt caaagtagga 301 caaccettgt ttagetatga aacgtcacag cggttaacgg ctcaaagttc agaatttgat 361 gttcaaacca aagccaatca gctccaagtt gctaaaacca atgcagcatt gaagtgggaa 421 acctacaatc gcaaggtcaa tgaaatcaac accctaaaat ctcgctacaa cactgcacca 481 gatgagaget tactagagea aattegeage geagaagaea gtgtateeea ageaetaage 541 gatgccaaaa cagcagatag cgatgtcaaa accgctcaaa tcgaactcga taaagctaat 601 gctactgcca caacggaaaa aggtaaacta gagtatgaca ccgttaagtc agacaccgca 661 ggaaccattg ttagtctaaa tactgatttg ccaaatcaat caaaatccaa aaaagaaaat 721 gaaactttta tggaaattat cgacaaatca aaaatgttag tcaaaggtaa cattagtgaa 781 tttgaccgtg acaagttaaa aatcggtcaa aaagtcgaag tgattgaccg caaagacaac 841 tctaaaaaat ggactggaaa agtaacccaa gttggcaacc tcaaagcaga ggaaaaaggc 901 caaggtcaag gccaaggtgg caatgaccaa caagataatc caaaccaagc aaaattccct 961 tatgttattg aacttgacca atcagacaag cagccactca ttggctcaca cacctatgtt 1021 aatgtactca acaatgttcc agaagctggc aagatcgtat tgaaagaaac ctttacaatg 1081 gcagaaaatg gaaaaaccta tgtgtggaaa gttgataaaa acaaggtcaa aaaacaagaa 1141 atcaagacta agcccttctc aaaaggttat gttgaggtaa caagtggctt gactatgcaa 1201 gataagattg ctcaqccgct tcctqqcatg aaagacggta tggaggtagg aagtattgtt 1261 aaaccttaa (SEQ ID NO: 29)

#### Figure 16

1 MFQLRKKMTR KQLALLSAGV LTCVVGGSYL IMNHQQQEIV SSVNKVKALT IKEAMEQGKD 61 ISLTLAGEVT ANNSSKVKID SSKGEVKEVF VKKGDVVKVG QPLFSYETSQ RLTAQSSEFD 121 VQTKANQLQV AKTNAALKWE TYNRKVNEIN TLKSRYNTAP DESLLEQIRS AEDSVSQALS 181 DAKTADSDVK TAQIELDKAN ATATTEKGKL EYDTVKSDTA GTIVSLNTDL PNQSKSKKEN 241 ETFMEIIDKS KMLVKGNISE FDRDKLKIGQ KVEVIDRKDN SKKWTGKVTQ VGNLKAEEKG 301 QGQGQGGNDQ QDNPNQAKFP YVIELDQSDK QPLIGSHTYV NVLNNVPEAG KIVLKETFTM 361 AENGKTYVWK VDKNKVKKQE IKTKPFSKGY VEVTSGLTMQ DKIAQPLPGM KDGMEVGSIV 421 KP (SEQ ID NO: 30)

#### Figure 17

1 atgtttcagt taagaaaaaa aatgacgcgc aaacaattag ccttgttgag tgctggagtg 61 ttgacctgtg tggttggtgg tagctacttg ataatgaacc atcaacaaca agaaattgtc 121 tctagtgtca acaaagtaaa agccttaacc ataaaagaag ccatggaaca aggaaaagat 181 atcagcttga ccttagctgg cgaagtaaca gctaacaaca gcagcaaagt caaaatcgac 241 tcaagtaaag gagaagtcaa agaggtcttt gttaaaaaag gcgatgttgt caaagtagga 301 caaccettgt ttagetatga aacgtcacag cggttaacgg ctcaaagttc agaatttgat 361 gttcaaacca aagccaatca gctccaagtt gctaaaacca atgcagcatt gaagtgggaa 421 acctacaatc gcaaggtcaa tgaaatcaac accctaaaat ctcgctacaa cactgcacca 481 gatgagaget tactagagea aattegeage geagaagaea gtgtateeea ageaetaage 541 gatgccaaaa cagcagatag cgatgtcaaa accgctcaaa tcgaactcga taaagctaat 601 gctactgcca caacggaaaa aggtaaacta gagtatgaca ccgttaagtc agacaccgca

#### Figure 17 (continued)

661 ggaaccattg ttagtctaaa tactgatttg ccaaatcaat caaaatccaa aaaagaaaat 721 gaaactttta tggaaattat cgacaaatca aaaatgttag tcaaaggtaa cattagtgaa 781 tttgaccgtg acaagttaaa aatcggtcaa aaagtcgaag tgattgaccg caaagacaac 841 tctaaaaaat ggactggaaa agtaacccaa gttggcaacc tcaaagcaga ggaaaaaggc 901 caaggtcaag gccaaggtgg caatgaccaa caagataatc caaaccaagc ggaaaaaggc 961 tatgttattg aacttgacca atcagacaag cagcactca ttggctcaca cacctatgtt 1021 aatgtactca acaatgttcc agaagctggc aagatcgtat tgaaagaaac ctttacaatg 1081 gcagaaaatg gaaaaaccta tgtgtggaaa gttgataaaa acaaggtcaa aaaaccaagaa 1141 atcaagacta agcccttctc aaaaggttat gttgaggtaa caagtggctt gactatgcaa 1201 gataagattg ctcagccgct tcctggcatg aaagacggta tggaggtagg aagtattgtt 1261 aaaccttaa (SEO ID NO: 31)

Figure 18

1 MFQLRKKMTR KQLALLSAGV LTCVVGGSYL IMNHQQQEIV SSVNKVKALT IKEAMEQGKD
61 ISLTLAGEVT ANNSSKVKID SSKGEVKEVF VKKGDVVKVG QPLFSYETSQ RLTAQSSEFD
121 VQTKANQLQV AKTNAALKWE TYNRKVNEIN TLKSRYNTAP DESLLEQIRS AEDSVSQALS
181 DAKTADSDVK TAQIELDKAN ATATTEKGKL EYDTVKSDTA GTIVSLNTDL PNQSKSKKEN
241 ETFMEIIDKS KMLVKGNISE FDRDKLKIGQ KVEVIDRKDN SKKWTGKVTQ VGNLKAEEKG
301 QGQGQGGNDQ QDNPNQAKFP YVIELDQSDK QPLIGSHTYV NVLNNVPEAG KIVLKETFTM
361 AENGKTYVWK VDKNKVKKQE IKTKPFSKGY VEVTSGLTMQ DKIAQPLPGM KDGMEVGSIV
421 KP

(SEQ ID NO: 32)

#### Figure 19

1 atgtttcagt taagaaaaaa aatgacgcgc aaacaattag ccttgttgag tgctggagtg 61 ttgacctgtg tggttggtgg tagctacttg ataatgaacc atcaacaaca agaagttgtc 121 totagtqtca acaaaqtaaa agcottaacc ataaaagaag ccatggaaca aggaaaagat 181 atcagettga cettagetgg egaagtaaca getaacaaca geageaaagt caaaategae 241 tcaaqtaaaq qaqaaqtcaa aqaqqtcttt gtcaaaaaag gcgatgttgt caaagtagga 301 caacccttgt ttagctatga aacgtcacag cggttaacgg ctcaaagttc agaatttgat 361 gttcaaacca aagccaatca actccaagtt gctaaaacca atgcagcatt gaagtgggaa 421 acctacaatc gcaaggtcaa tgaaatcaac accctaaaat ctcgctacaa cactgcacca 481 gatgagaget tactagagea aattegeage geagaagaea gtgtateeea ageactaage 541 gatgccaaaa cagcagatag cgatgtcaaa accgctcaaa tcgaactcga taaagctaat 601 getactqcca caatqqaaaa aggtaaacta gagtatgaca ccgttaagtc agacaccgca 661 ggaaccattg ttagcctaaa tactgatttg ccaaatcaat caaaatccaa aaaagaaaat 721 qaaactttta tggaaattat cgacaaatca aaaatgttag tcaaaggtaa catcagtgaa 781 tttgaccqtg acaaqttaaa aatcgatcaa aaagtcgaag tgattgaccg caaagacaac 841 tctaaaaaat ggactggaaa agtaacccaa gttggcaacc tcaaagcaga ggaaaaaggc 901 caaqqtcaaq qccaaqqtqq caatqaccaa caagacaatc caaaccaagc aaaattccct 961 tatgttatcg aacttgacca atcagacaag cagccactca ttggctcaca cacctatgtt 1021 aatgtgetea acaatgttee agaagetgge aagategtat tgaaagaaac etttacaatg 1081 gcagaaaatg gaaaaaccta tgtgtggaaa gttgataaaa acaaggtcaa aaaacaagaa 1141 atcaagacta agccettete aaaaggttat gttgaggtga caagtggett gactatgcaa 1201 gataagattg ctcagccgct tcctggcatg aaagacggta tggaggtagg aagtattgtt 1261 aaaccttaa SEQ ID NO: 33

5/18

#### Figure 20

1 MFQLRKKMTR KQLALLSAGV LTCVVGGSYL IMNHQQQEVV SSVNKVKALT IKEAMEQGKD
61 ISLTLAGEVT ANNSSKVKID SSKGEVKEVF VKKGDVVKVG QPLFSYETSQ RLTAQSSEFD
121 VQTKANQLQV AKTNAALKWE TYNRKVNEIN TLKSRYNTAP DESLLEQIRS AEDSVSQALS
181 DAKTADSDVK TAQIELDKAN ATATMEKGKL EYDTVKSDTA GTIVSLNTDL PNQSKSKKEN
241 ETFMEIIDKS KMLVKGNISE FDRDKLKIDQ KVEVIDRKDN SKKWTGKVTQ VGNLKAEEKG
301 QGQGQGGNDQ QDNPNQAKFP YVIELDQSDK QPLIGSHTYV NVLNNVPEAG KIVLKETFTM
361 AENGKTYVWK VDKNKVKKQE IKTKPFSKGY VEVTSGLTMQ DKIAQPLPGM KDGMEVGSIV
421 KP

(SEQ ID NO: 34)

#### Figure 21

1 atgtttcagt taagaaaaaa aatgacgcgc aaacaattag ccttgttgag tgctggagtg 61 ttgacctgtg tggttggtgg tacctacttg ataatgaatc atcaacaaca agaaattgtc 121 tctagtgtca acaaagtaaa agccttaacc ataaaagaag ccatggaaca aggaaaagat 181 atcagcttga ccttagctgg cgaagtaaca gctaacaaca gcagcaaagt caaaatcgac 241 tcaagtaaag gagaagtcaa agatgtcttt gtcaaaaaag gcgatgttgt caaagtagga 301 caaccettgt ttagetatga aacgtcacaa cggttaacgg ctcaaagttc agaatttgat 361 gttcaaacca aagccaatca actccaagtt gctaaaacca atgcagcatt gaagtgggaa 421 acctacaatc gcaaggtcaa tgaaatcaat accctaaaat ctcgctacaa cactgcacca 481 gatgagaget tactagagea aattegeage geagaagaea gtgtatetea ageaetaage 541 gatgccaaaa cagcagatag cgatgtcaaa accgctcaaa tcgaactcga taaagctaat 601 gctactgccg caacggaaaa aggtaaacta gagtatgaca ccgttaagtc agacaccgca 661 ggaaccattg ttagtctaaa tactgatttg ccaaatcaat caaaatccaa aaaagaaaat 721 gaaactttta tggaaattat cgacaaatca aaaatgttag tcaaaggtaa catcagtgaa 781 tttgaccgtg acaagttaaa aatcgatcaa aaagtcgaag tgattgaccg caaagacaac 841 tctaaaaaat ggactggaaa agtaacccaa gttggcaacc tcaaagcaga ggaaaaaggc 901 caaggtcaag gccaaggtgg caatgaccaa caagataatc caaaccaagc aaaattccct 961 tatgttatcg aacttgacca atcagacaag cagccactca ttggttcaca cacctatgtt 1021 aatgtgctca acaatgttcc agaagctggc aagatcgtat tgaaagaaac ctttacaatg 1081 gcagaaaatg gaaaaaccta tgtgtggaaa gttgataaaa acaaggtcaa aaaacaagaa 1141 atcaagacta agcccttctc aaaaggttat gttgaggtga caagcggctt gactatgcaa 1201 gataagattg ctcagccgct tcctggcatg aaagacggta tggaggtagg aagtattgtt 1261 aaaccttaa (SEQ ID NO: 35)

#### Figure 22

1 MFQLRKKMTR KQLALLSAGV LTCVVGGTYL IMNHQQQEIV SSVNKVKALT IKEAMEQGKD
61 ISLTLAGEVT ANNSSKVKID SSKGEVKDVF VKKGDVVKVG QPLFSYETSQ RLTAQSSEFD
121 VQTKANQLQV AKTNAALKWE TYNRKVNEIN TLKSRYNTAP DESLLEQIRS AEDSVSQALS
181 DAKTADSDVK TAQIELDKAN ATAATEKGKL EYDTVKSDTA GTIVSLNTDL PNQSKSKKEN
241 ETFMEIIDKS KMLVKGNISE FDRDKLKIDQ KVEVIDRKDN SKKWTGKVTQ VGNLKAEEKG
301 QGQGQGGNDQ QDNPNQAKFP YVIELDQSDK QPLIGSHTYV NVLNNVPEAG KIVLKETFTM
361 AENGKTYVWK VDKNKVKKQE IKTKPFSKGY VEVTSGLTMQ DKIAQPLPGM KDGMEVGSIV
421 KP

(SEQ ID NO: 36)

#### Figure 23

1 atgataaaac gatgtaaagg aattggtcta gtcttaatgg ccttctttt ggtagcttgt 61 gtaaatcagc accctaaaac ggctaaagag actgaacagc agagaattgt agccacttcg 121 gttgctgtgg ttgatatctg tgaccgttta aatttagacc tcgttggggt ttgtgatagt 181 aaattatata cccttcctaa acgctatgat gctgttaagc gtgtgggttt acccatgaat 241 cctgatatag agttgattgc ttctttgaaa ccaacttgga ttttgagtcc caattcttta 301 caagaagatt tggaacccaa gtatcaaaaa ttggatactg agtatggttt tttgaactta 361 cgaagtgttg agggcatgta ccagtctatt gatgatttag ggaacctttt ccaacgtcaa 421 caagaagcaa aagaattgcg ccagcaatac caggactatt atcgtgcttt ccaagctaaa 481 cgcaagggga agaaaaagcc taaagtgctt attcttatgg gcttgccagg tagttatttg 541 gtqqcqacqa accaatctta tgtaqggaat cttttggact tggcaggtgg tgagaatgtt 601 tatcagtcag atgagaaaga atttctatca gttaatcctg aagacatgct agctaaggag 661 cctgacttga ttttacgaac agctcacgcc attccagaca aggtaaaagt gatgtttgac 721 aaagaatttg ctgaaaatga tatttggaaa cattttacgg cagtcaagga agggaaagtc 781 tatgatttgg acaataccet gtttggcatg agtgctaaat tgaactaccc agaagcettg 841 gacaccttaa cacagctttt tgaccacgtg ggagatcatc cgtaa (SEQ ID NO: 37)

#### Figure 24

1 MIKRCKGIGL VLMAFFLVAC VNQHPKTAKE TEQQRIVATS VAVVDICDRL NLDLVGVCDS
61 KLYTLPKRYD AVKRVGLPMN PDIELIASLK PTWILSPNSL QEDLEPKYQK LDTEYGFLNL
121 RSVEGMYQSI DDLGNLFQRQ QEAKELRQQY QDYYRAFQAK RKGKKKPKVL ILMGLPGSYL
181 VATNQSYVGN LLDLAGGENV YQSDEKEFLS VNPEDMLAKE PDLILRTAHA IPDKVKVMFD
241 KEFAENDIWK HFTAVKEGKV YDLDNTLFGM SAKLNYPEAL DTLTQLFDHV GDHP

(SEQ ID NO: 38)

#### Figure 25

1 atgataaaac gatgtaaagg aattggtcta gtcttaatgg ccttctttt ggtagcttgt 61 gtaaatcagc accctaaaac ggctaaagag actgaacagc agagaattgt agccacttcg 121 gttgctgtgg ttgatatctg tgaccgttta aatttagacc tcgttggggt ttgtgatagt 181 aaattatata cccttcctaa acgctatgat gctgttaagc gtgtgggttt acccatgaat 241 cctgatatag agttgattgc ttctttgaaa ccaacttgga ttttgagtcc caattcttta 301 caagaagatt tggaacccaa gtatcaaaaa ttggatactg agtatggttt tttgaactta 361 cgaagtgttg agggcatgta ccagtctatt gatgatttag ggaacctttt ccaacgtcaa 421 caagaagcaa aagaattgcg ccagcaatac caggactatt atcgtgcttt ccaagctaaa 481 cgcaagggga agaaaaagcc taaagtgctt attcttatgg gcttgccagg tagttatttg 541 gtggcgacga accaatctta tgtagggaat cttttggact tggcaggtgg tgagaatgtt 601 tatcagtcag atgagaaaga atttctatca gttaatcctg aagacatgct agctaaggag 661 cctgacttga ttttacgaac agctcacgcc attccagaca aggtaaaagt gatgtttgac 721 aaagaatttg ctgaaaatga tatttggaaa cattttacgg cagtcaagga agggaaagtc 781 tatgatttgg acaataccct gtttggcatg agtgctaaat tgaactaccc agaagccttg 841 gacaccttaa cacagctttt tgaccacgtg ggagatcatc cgtaa (SEQ ID NO: 39)

#### Figure 26

1 MIKRCKGIGL VLMAFFLVAC VNQHPKTAKE TEQQRIVATS VAVVDICDRL NLDLVGVCDS
61 KLYTLPKRYD AVKRVGLPMN PDIELIASLK PTWILSPNSL QEDLEPKYQK LDTEYGFLNL
121 RSVEGMYQSI DDLGNLFQRQ QEAKELRQQY QDYYRAFQAK RKGKKKPKVL ILMGLPGSYL
181 VATNQSYVGN LLDLAGGENV YQSDEKEFLS VNPEDMLAKE PDLILRTAHA IPDKVKVMFD
241 KEFAENDIWK HFTAVKEGKV YDLDNTLFGM SAKLNYPEAL DTLTQLFDHV GDHP

(SEO ID NO: 40)

#### Figure 27

1 atgataaaac gatgtaaagg aattggtcta gccttaatgg ccttcttttt ggtagcttgt 61 gtgaatcagc accctaaaac ggctaaagag actgaacagc agagaattgt agccacttcg 121 gttgctgtgg ttgatatctg tgaccgttta aatttagacc tcgttggggt ttgtgatagt 181 aaattatata cccttcctaa acgctatgat gctgttaagc gtgtgggttt acccatgaat 241 cctgatatag agttgattgc ttctttgaaa ccaacttgga ttttgagtcc caattcttta 301 caagaagatt tggaacccaa gtatcaaaaa ttggatactg agtatggttt tttgaactta 361 cgaagtgttg agggcatgta ccagtccatt gatgatttag ggaacctttt ccaacgtcaa 421 caagaagcaa aagaattgcg ccagcaatac caggactatt atcgtgcttt ccaagctaaa 481 cgtaagggga agaaaaagcc taaagtgctt attcttatgg gcttgccagg tagttatttg 541 gtggcgacga accaatctta tgtagggaat cttttggatt tggcaggtgg tgagaatgtt 601 tatcagtcag atgagaaaga atttctatca gctaatcctg aagacatgct ggctaaggag 661 cctgatttga ttttacgaac agctcacgcc attccagaca aggtaaaagt gatgtttgac 721 aaagaatttg ctgaaaatga tatttggaaa cattttacgg cagtcaagga agggaaagtc 781 tatgatttgg acaataccct gtttggcatg agtgctaaat tgaactaccc agaagccttg 841 gacaccttaa cacagctttt tgaccgcgtg ggagatcatc cgtaa (SEQ ID NO: 41)

#### Figure 28

1 MIKRCKGIGL ALMAFFLVAC VNQHPKTAKE TEQQRIVATS VAVVDICDRL NLDLVGVCDS
61 KLYTLPKRYD AVKRVGLPMN PDIELIASLK PTWILSPNSL QEDLEPKYQK LDTEYGFLNL
121 RSVEGMYQSI DDLGNLFQRQ QEAKELRQQY QDYYRAFQAK RKGKKKPKVL ILMGLPGSYL
181 VATNQSYVGN LLDLAGGENV YQSDEKEFLS ANPEDMLAKE PDLILRTAHA IPDKVKVMFD
241 KEFAENDIWK HFTAVKEGKV YDLDNTLFGM SAKLNYPEAL DTLTQLFDRV GDHP

(SEQ ID NO: 42)

#### Figure 29

1 atgataaaac gatgtaaagg aattggtcta gtcttaatgg ccttcttttt ggtagcttgt 61 gtaaatcagc accctaaaac ggctaaagag actgaacagc agagaattgt agccacttcg 121 gttgctgtgg ttgatatctg tgaccgttta aatttagacc tcgttggggt ttgtgatagt 181 aaattatata cccttcctaa acgctatgat gctgttaagc gtgtgggttt acccatgaat 241 cctgatatag agttgattgc ttctttgaaa ccaacttgga ttttgagtcc caattcttta 301 caagaagatt tggaacccaa gtatcaaaaa ttggatactg agtatggttt tttgaactta 361 cgaagtgttg agggcatgta ccagtctatt gatgatttag ggaacctttt ccaacgtcaa 421 caagaagcaa aagaattgcg ccagcaatac caggactatt atcgtgcttt ccaagctaaa 481 cgtaagggga agaaaaagcc taaagtgctt attcttatgg gcttgccagg tagttatttg 541 gtggcgacga accaatctta tgtagggaat cttttggact tggcaggtgg tgagaatgtt 601 tatcagtcag atgagaaaga atttctatca gttaatcctg aagacatgct agctaaggag 661 cctgacttga ttttacgaac agctcacgcc attccagaca aggtaaaagt gatgtttgac 721 aaagaatttg ctgaaaatga tatttggaaa cattttacgg cagtcaagga agggaaagtc 781 tatgatttgg acaataccct gtttggcatg agtgctaaat tgaactaccc agaagccttg 841 gacaccttaa cacagctttt tgaccacgtg ggagatcatc cgtaa (SEQ ID NO: 43)

#### Figure 30

1 MIKRCKGIGL VLMAFFLVAC VNQHPKTAKE TEQQRIVATS VAVVDICDRL NLDLVGVCDS
61 KLYTLPKRYD AVKRVGLPMN PDIELIASLK PTWILSPNSL QEDLEPKYQK LDTEYGFLNL
121 RSVEGMYQSI DDLGNLFQRQ QEAKELRQQY QDYYRAFQAK RKGKKKPKVL ILMGLPGSYL
181 VATNQSYVGN LLDLAGGENV YQSDEKEFLS VNPEDMLAKE PDLILRTAHA IPDKVKVMFD
241 KEFAENDIWK HFTAVKEGKV YDLDNTLFGM SAKLNYPEAL DTLTQLFDHV GDHP
(SEQ ID NO: 44)

Figure 31

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ATCC700294	ATGTCACGTA T	IIGGIAAIAA	MGIWHIIWCI	ATGCCTGCAG	GCGTTGAATT
MGAS315	ATGTCACGTA T	IIGGIAAIAA .	AGIAAIIACI	ATGCCTGCAG	GCGTTGAATT
SSI-1	ATGTCACGTA	TIGGTAATAA .	ACTAATIACT	ATGCCTGCAG	GCGTTGAATT
Manfredo	ATGTCACGTA	TTGGTAATAA	AGTAATTACT		GTGTTGAATT
MGAS8232	ATGTCACGTA	LIGGIAATAA	AGTAATTACT	ATGCCTGCAG	GIGIIGAAII
	E-1				100
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ATCC700294	AACAAATAAC AACAAATAAC	MACAAIGIIA	TIMOLGILAM	ACCCCCTAAA	CCCCAACTCA
MGAS315	AACAAATAAC	MACAMIGIIA	TIACIGITAA	ACCCCCTAIL	GGCGAACTCA
SSI-1	AACAAATAAC AACAAATAAC				
Manfredo	AACAAATAAC AACAAATAAC				
MGAS8232	AACAAATAAC .	AACAATGITA	ITACIGITAA	AGGCCCIAAA	GGCGAACICA
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SSI-1				AAGTTGAAGG	GACTGAAATC
Manfredo					01.00001
MGAS8232	CTCGTGAGTT	CAACAAAAA'I'	ATTGAAATCA	AAGTTGAAGG	GACTGAAATC
	151				200
7 maa7 0 0 0 0 4	151	CTCCTTTTCCT	CTCAAAACAA	<b>λ</b> ΨCλλλλΔCλλ	TCCATGGTAC
ATCC700294				ATGAAAACAA	
MGAS315					
SSI-1					TCCATGGTAC
Manfredo					TCCATGGGAC
MGAS8232	ACAGTTGTAC	GTCCTAACGA	CTCAAAAGAA	A'I'GAAAACAA	TCCATGGTAC
	0.01				250
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ATCC700294					
MGAS315				AGGTGTTTCT	
SSI-1	AACCCGTGCT	AACTŢGAATA	ACATGGTTGT	AGGTGTTTCT	
Manfredo		AACTTGAATA			
MGAS8232	AACCCGTGCT	AACTTGAATA	ACATGGTTGT	AGGTGTTTC1	GAAGGTTTCA
	0.54				300
	251	mannman.	CCMCMCCCM	, v cccmccmc,	A ACTTCAAGGT
ATCC700294	AAAAAGATCT	•			
MGAS315	AAAAAGATCT		GGTGTCGGT		A ACTTCAAGGT
SSI-1	AAAAAGATCT				ACTTCAAGGT
Manfredo	AAAAAGATCT				A ACTTCAAGGT
MGAS8232	AAAAAGATCT	TGAAATGAAG	GGTGTCGGT'	r accetected	A ACTTCAAGGT
					350
	301				
ATCC700294					AAGTTGAAGC
MGAS315					G AAGTTGAAGC
ssi-1	ACTAAACTTG	TCCTTTCAG	r AGGTAAATC	T CACCAAGAC	G AAGTTGAAGC
Manfredo	ACTAAACTTG	TCCTTTCAG	' AGGTAAATC	T CACCAAGAC	G AAGTTGAAGC
MGAS8232	ACTAAACTTG	TCCTTTCAG	r aggtaaatc	T CACCAAGAC	G AAGTTGAAGC
					400
	351			* GGG**GMMC	400
ATCC700294	TCCAGAAGGA	ATTACTTTC	A CTGTTGCTA	A CCCAACTTC	A ATCTCAGTTG
MGAS315					A ATCTCAGTTG
SSI-1					A ATCTCAGTTG
Manfredo	TCCAGAAGGA	A ATTACTTTC	A CTGTTGCTA	A CCCAACTTC	A ATCTCAGTTG
MGAS8232	TCCAGAAGG	A ATTACTTTC	A CTGTTGCTA	A CCCAACTTC	A ATCTCAGTTG

# Figure 31 (continued)

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	401				450
ATCC700294	AAGGAATCAA	CAAAGAAGTT	GTTGGTCAAA	CAGCTGCTTA	CATCCGTAGC
MGAS315	AAGGAATCAA	CAAAGAAGTT	GTTGGTCAAA	CAGCTGCTTA	CATCCGTAGC
SSI-1	AAGGAATCAA	CAAAGAAGTT	GTTGGTCAAA	CAGCTGCTTA	CATCCGTAGC
Manfredo	AAGGAATCAA	CDDDCDDCTT	GTTGGTCAAA	CAGCTGCTTA	CATCCGTAGC
	AAGGAATCAA	CANACAACTT	CTTCCTCAAA	CAGCTGCTTA	CATCCGTAGC
MGAS8232	HAGGAAICAA	CHANDANGII	GIIGGICHH	011001001111	
	451				500
	451	CACACCCMMA	CNNNCCCNNN	GGGATCCGTT	
ATCC700294	TTGCGTTCAC	CAGAGCCTTA	CAMAGGCAAA	GGGATCCGTT	ACCTTCCTCA
MGAS315	TTGCGTTCAC	CAGAGCCTTA	CAAAGGCAAA	GGGATCCGTT	ACCUTCCTCA
SSI-1	TTGCGTTCAC	CAGAGCCTTA	CAAAGGCAAA	GGGATCCGTT	ACGTTGGTGA
Manfredo	TTGCGTTCAC	CAGAGCCTTA	CAAAGGCAAA	GGGATCCGTT	
MGAS8232	TTGCGTTCAC	CAGAGCCTTA	CAAAGGCAAA	GGGATCCGTT	ACGTTGGTGA
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	501			537	
ATCC700294	ATACGTACGC				
MGAS315	ATACGTACGC				
SSI-1	ATACGTACGC				
Manfredo			GTAAAACAGG		
MGAS8232	ATACGTACGC	CTTAAAGAAG	GTAAAACAGG	TAAATAA	
Figure 32					r.0
	1				50
ATCC700294	MSRIGNKVIT	MPAGVELTNN	NNVITVKGPK	GELTREFNKN	IEIKVEGTEI
MGASS15	MSRIGNKVIT	MPAGVELTNN	NNVITVKGPK	GELTREFNKN	IEIKVEGTEI
SSI-1	MSRIGNKVIT	MPAGVELTNN	NNVITVKGPK	GELTREFNKN	IEIKVEGTEI
Manfredo	MSRIGNKVIT	MPAGVELTNN	NNVITVKGPK	GELTREFNKN	IEIKVEGTEI
MGAS8232	MSRIGNKVIT	MPAGVELTNN	NNVITVKGPK	GELTREFNKN	IEIKVEGTEI
	51				100
ATCC700294	TVVRPNDSKE	MKTIHGTTRA	NLNNMVVGVS	EGFKKDLEMK	GVGYRAQLQG
MGAS315	TVVRPNDSKE	MKTIHGTTRA	NLNNMVVGVS	EGFKKDLEMK	GVGYRAQLQG
SSI-1	TVVRPNDSKE	MKTTHGTTRA	NLNNMVVGVS	EGFKKDLEMK	GVGYRAQLQG
Manfredo	TANKEMBEKE	MKTTHGTTR	NINNMVVGVS	FGFKKDLEMK	GVGYRAQLQG
	TAAKENDSKE	METHOTIC	NT.NNMVVGVS	EGFKKDLEMK	GVGYRAQLQG
MGAS8232	IAAKERDSKE	MILLIGITIA	, MINIMA AOA	, 2011111222	
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ATCC700294	LVTATO AGVO	HODEARADEA HODEARACEA	. TILLAWALL	TOVECTNIKEV	VGQTAAYIRS
MGAS315	TKLVLSVGKS	NODEVENEE	O TIETVAMET	TOVECTNIKE	VGQTAAYIRS
SSI-1	TKLVLSVGKS	HODEVERPE	5 TIEIVANEI	TOVECTNEES	VGQTAAYIRS
Manfredo	TKLVLSVGKS	HODEVEAPE	J ITETVANPT	TOARCINER	ACCULVANTED A
MGAS8232	TKLVLSVGKS	HQDEVEAPE	S ITETVANPT	O TOATGINVE/	/ VGQTAAYIRS
	454		17	0	
	151			D	
ATCC700294		GIRYVGEYV			
MGAS315		GIRYVGEYV			
SSI-1		GIRYVGEYV			
Manfredo		K GIRYVGEYV			
MGAS8232	LRSPEPYKGI	K GIRYVGEYV	R LKEGKTGK		

Figure 33	
~ - 5	1 50
ATCC700294	ATGTTTCAGT TAAGAAAAA AATGACGCGC AAACAATTAG CCTTGTTGAG
MGAS315	ATGTTTCAGT TAAGAAAAA AATGACGCGC AAACAATTAG CCTTGTTGAG
SSI-1	ATGTTTCAGT TAAGAAAAA AATGACGCGC AAACAATTAG CCTTGTTGAG
Manfredo	ATGTTTCAGT TAAGAAAAAA AATGACGCGC AAACAATTAG CCTTGTTGAG ATGTTTCAGT TAAGAAAAAA AATGACGCGC AAACAATTAG CCTTGTTGAG
MGAS8232	ATGTTTCAGT TAAGAAAAA AATGACGCGC AAACAATTAG CCTTGTTGAG
	51 100
ATCC700294	TGCTGGAGTG TTGACCTGTG TGGTTGGTGG TAGCTACTTG ATAATGAACC
MGAS315	TGCTGGAGTG TTGACCTGTG TGGTTGGTGG TAGCTACTTG ATAATGAACC
SSI-1	TGCTGGAGTG TTGACCTGTG TGGTTGGTGG TAGCTACTTG ATAATGAACC
Manfredo	TGCTGGAGTG TTGACCTGTG TGGTTGGTGG TAGCTACTTG ATAATGAACC
MGAS8232	TGCTGGAGTG TTGACCTGTG TGGTTGGTGG TACCTACTTG ATAATGAATC
	101 150
ATCC700294	TO THE RESIDENCE OF THE PROPERTY OF THE PROPER
MGAS315	ATCAACAACA AGAAATTGTC TCTAGTGTCA ACAAAGTAAA AGCCTTAACC
SSI-1	ATCAACAACA AGAAATTGTC TCTAGTGTCA ACAAAGTAAA AGCCTTAACC
Manfredo	ATCAACAACA AGAAGTTGTC TCTAGTGTCA ACAAAGTAAA AGCCTTAACC
MGAS8232	ATCAACAACA AGAAATTGTC TCTAGTGTCA ACAAAGTAAA AGCCTTAACC
	151 200
ATCC700294	
MGAS315	ATAAAAGAAG CCATGGAACA AGGAAAAGAT ATCAGCTTGA CCTTAGCTGG
SSI-1	ATAAAAGAAG CCATGGAACA AGGAAAAGAT ATCAGCTTGA CCTTAGCTGG
Manfredo	ATAAAAGAAG CCATGGAACA AGGAAAAGAT ATCAGCTTGA CCTTAGCTGG
MGAS8232	ATAAAAGAAG CCATGGAACA AGGAAAAGAT ATCAGCTTGA CCTTAGCTGG
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7 maa70000 A	
ATCC700294 MGAS315	CGAAGTAACA GCTAACAACA GCAGCAAAGT CAAAATCGAC TCAAGTAAAAG
SSI-1	CGAAGTAACA GCTAACAACA GCAGCAAAGT CAAAATCGAC TCAAGTAAAG
Manfredo	CGAAGTAACA GCTAACAACA GCAGCAAAGT CAAAATCGAC TCAAGTAAAG
MGAS8232	CGAAGTAACA GCTAACAACA GCAGCAAAGT CAAAATCGAC TCAAGTAAAG
	200
- mag20000	251 4 GAGAAGTCAA AGAGGTCTTT GTTAAAAAAG GCGATGTTGT CAAAGTAGGA
ATCC700294	GAGAAGTCAA AGAGGTCTTT GTTAAAAAAG GCGATGTTGT CAAAGTAGGA
MGAS315 SSI-1	GAGAAGTCAA AGAGGTCTTT GTTAAAAAAG GCGATGTTGT CAAAGTAGGA
Manfredo	GAGAAGTCAA AGAGGTCTTT GTCAAAAAAG GCGATGTTGT CAAAGTAGGA
MGAS8232	GAGAAGTCAA AGATGTCTTT GTCAAAAAAG GCGATGTTGT CAAAGTAGGA
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ATCC70029	4 CAACCTTGT TTAGCTATGA AACGTCACAG CGGTTAACGG CTCAAAGTTC CAACCTTGT TTAGCTATGA AACGTCACAG CGGTTAACGG CTCAAAGTTC
MGAS315	CAACCCTTGT TTAGCTATGA AACGTCACAG CGGTTAACGG CTCAAAGTTC
SSI-1 Manfredo	CAACCCITGI TIAGCIAIGA AACGICACAG CGGITAACGG CICAAAGTIC
MGAS8232	CAACCCTTGT TTAGCTATGA AACGTCACAA CGGTTAACGG CTCAAAGTTC
*#*****	351 4 AGAATTTGAT GTTCAAACCA AAGCCAATCA GCTCCAAGTT GCTAAAACCA
ATCC70029 MGAS315	AGAATITGAT GITCAAACCA AAGCCAATCA GCTCCAAGIT GCTAAAACCA AGAATTTGAT GTTCAAACCA AAGCCAATCA GCTCCAAGTT GCTAAAACCA
MGASSIS SSI-1	AGAATITGAT GTTCAAACCA AAGCCAATCA GCTCCAAGTT GCTAAAACCA
Manfredo	AGAATTTGAT GTTCAAACCA AAGCCAATCA ACTCCAAGTT GCTAAAACCA
MGAS8232	AGAATTIGAT GTTCAAACCA AAGCCAATCA ACTCCAAGTT GCTAAAACCA

Figure 33 (continued)

	401				450
ATCC700294		СААСТСССАА	<b>አ</b> ርርጥልር አልጥር	GCAAGGTCAA	• - •
MGAS315		GAAGTGGGAA		GCAAGGTCAA	
SSI-1		GAAGTGGGAA		GCAAGGTCAA	
Manfredo		GAAGTGGGAA		GCAAGGTCAA	
MGAS8232		GAAGTGGGAA		GCAAGGTCAA	
MGAS8232	AIGCAGCAII	GAAG1GGAA	ACCIACAAIC	GCMAGGICAA	IGHHICHI
	451				500
ATCC700294		СПСССТВСВВ	CACTGCACCA	CATCACACCT	TACTAGAGCA
MGAS315	ACCCTAAAAT		CACTGCACCA		TACTAGAGCA
SSI-1			CACTGCACCA		TACTAGAGCA
Manfredo	ACCCTAAAAT		CACTGCACCA		TACTAGAGCA
MGAS8232			CACTGCACCA		TACTAGAGCA
MGA56232	ACCCIAAAAI	CICGCIACAA	CACIGCACCA	GAIGAGAGCI	IACIAGAGCA
	501				550
ATCC700294	-	CCACAACACA	ርጥርጥልጥርርርል	AGCACTAAGC	GATGCCAAAA
MGAS315				AGCACTAAGC	GATGCCAAAA
				AGCACTAAGC	GATGCCAAAA
SSI-1					
Manfredo				AGCACTAAGC	GATGCCAAAA
MGAS8232	AATTCGCAGC	GCAGAAGACA	GTGTATCTCA	AGCACTAAGC	GATGCCAAAA
	C C 1				600
7.maa7.000.4	551	CCAMCMCAAA	7 CCCCMC7 7 7	mccx x cmccx	
ATCC700294	•			TCGAACTCGA	
MGAS315	•			TCGAACTCGA	
SSI-1	•••••			TCGAACTCGA	
Manfredo				TCGAACTCGA	
MGAS8232	CAGCAGATAG	CGATGTCAAA	ACCGCTCAAA	. TCGAACTCGA	TAAAGCTAAT
	601				650
- maaraaaa 4	601	03300003333	7.CCM7.7.7.CM7	C N C M N M C N C N	650
ATCC700294					CCGTTAAGTC
MGAS315					CCGTTAAGTC
SSI-1					CCGTTAAGTC
Manfredo			-		CCGTTAAGTC
MGAS8232	GCTACTGCCG	CAACGGAAAA	AGGTAAACTA	GAGTATGACA	CCGTTAAGTC
	651				700
ATCC700294		GGAACCATTO			CCAAATCAAT
MGAS315		GGAACCATTO		A TACTGATTTO	
SSI-1	AGACACCGCA	GGAACCATTO	TTAGTCTAA	A TACTGATTTO	CCAAATCAAT
Manfredo	AGACACCGCA	. GGAACCATTO	TTAGCCTAA	A TACTGATTIC	CCAAATCAAT
MGAS8232	AGACACCGCA	GGAACCATTO	TTAGTCTAA	A TACTGATTTO	CCAAATCAAT
	701				750
ATCC700294					CGACAAATCA
MGAS315					CGACAAATCA
SSI-1					CGACAAATCA
Manfredo	CAAAATCCAA	AAAAGAAAA!	r GAAACTTTT	A TGGAAATTA'	CGACAAATCA
MGAS8232	CAAAATCCAA	AAAAGAAAA	r GAAACTTTT	A TGGAAATTA	r cgacaaatca
					0.00
	751				800
ATCC700294					G ACAAGTTAAA
MGAS315					G ACAAGTTAAA
SSI-1					G ACAAGTTAAA
Manfredo			_		G ACAAGTTAAA
MGAS8232	AAAATGTTAG	TCAAAGGTA	A CATCAGTGA	A TTTGACCGT	G ACAAGTTAAA

# Figure 33 (continued)

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	801				850
ATCC700294	AATCGGTCAA A	AAGTCGAAG '	TGATTGACCG	CAAAGACAAC	TCTAAAAAAT
MGAS315	AATCGGTCAA A		TGATTGACCG	CAAAGACAAC	TCTAAAAAAT
	AATCGGTCAA A		TGATTGACCG		TCTAAAAAAT
SSI-1			TGATTGACCG	0.40	TCTAAAAAAT
Manfredo	AATCGATCAA A				<b>-</b>
MGAS8232	AATCGATCAA A	AAAGTCGAAG	TGATTGACCG	CAAAGACAAC	TCTAAAAAAT
	851				900
ATCC700294	GGACTGGAAA A	AGTAACCCAA	GTTGGCAACC	TCAAAGCAGA	GGAAAAAGGC
MGAS315	GGACTGGAAA A	AGTAACCCAA	GTTGGCAACC	TCAAAGCAGA	GGAAAAAGGC
SSI-1	GGACTGGAAA 1	AGTAACCCAA	GTTGGCAACC	TCAAAGCAGA	GGAAAAAGGC
Manfredo	GGACTGGAAA			TCAAAGCAGA	GGAAAAAGGC
MGAS8232	GGACTGGAAA			TCAAAGCAGA	
MGASOZJZ	GGACIGGAAA A	AG ITA IOCCIAI	01100012100	1011110011011	00.222
	001				950
	901	000 N 00000	CD D CC CC D D	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	CAAACCAAGC
ATCC700294	CAAGGTCAAG				
MGAS315	0			CAAGATAATC	CAAACCAAGC
SSI-1				CAAGATAATC	CAAACCAAGC
Manfredo	CAAGGTCAAG	GCCAAGGTGG	CAATGACCAA	CAAGACAATC	CAAACCAAGC
MGAS8232	CAAGGTCAAG	GCCAAGGTGG	CAATGACCAA	CAAGATAATC	CAAACCAAGC
110.150100					
	951				1000
7 M C C 7 C C C A		<b>ጥ</b> ለጥርጥጥ <b>ለ</b> ጥጥር	אארשייבארכא	ATCAGACAAG	CAGCCACTCA
ATCC700294				ATCAGACAAG	
MGAS315					
SSI-1	AAAATTCCCT			ATCAGACAAG	
Manfredo	AAAATTCCCT			ATCAGACAAG	
MGAS8232	AAAATTCCCT	TATGTTATCG	AACTTGACCA	. ATCAGACAAG	CAGCCACTCA
	1001				1050
ATCC700294	TTGGCTCACA	CACCTATGTT	AATGTGCTCA	ACAATGTTCC	AGAAGCTGGC
MGAS315	TTGGCTCACA	CACCTATGTT	AATGTACTCA	ACAATGTTCC	AGAAGCTGGC
SSI-1	TTGGCTCACA			ACAATGTTCC	
	TTGGCTCACA				AGAAGCTGGC
Manfredo					AGAAGCTGGC
MGAS8232	TTGGTTCACA	CACCIAIGII	AMIGIGUICA	1 ACAMIGITOC	MORNOCIOGO
	1051				1100
	1051				
ATCC700294	AAGATCGTAT	TGAAAGAAAC			
MGAS315	AAGATCGTAT	TGAAAGAAAC			
SSI-1	AAGATCGTAT	TGAAAGAAAC	CTTTACAAT	G GCAGAAAAT	-
Manfredo	AAGATCGTAT	TGAAAGAAAC	CTTTACAATO	G GCAGAAAAT	GAAAAACCTA
MGAS8232	AAGATCGTAT	TGAAAGAAAC	CTTTACAAT	G GCAGAAAAT	GAAAAACCTA
	1101				1150
ATCC700294		GTTGATAAAA	ACAAGGTCA	A AAAACAAGA	A ATCAAGACTA
MGAS315	TOTOTOGIATI	CTTCATAAAA	ACANGGTCA:	A AAAACAAGAA	A ATCAAGACTA
	TGTGTGGVVV	GIIGHIAAA	ACAMCCTCA	A AAAACAACAI	A ATCAAGACTA
SSI-1	TGTGTGGAAA	GIIGAIAAAA	ACAMOGICA	A ANANCANCA:	. 11101110ACIA
Manfredo	TGTGTGGAAA	GTTGATAAAA	ACAAGGTCA	HAMMACAMOM	A ATCAAGACTA
MGAS8232	TGTGTGGAAA	GTTGATAAA	A ACAAGGTCA	A AAAACAAGA	A ATCAAGACTA
		•			1000
	1151				1200
Manfredo	AGCCCTTCTC	AAAAGGTTAT	r gttgaggta	A CAAGTGGCT	r GACTATGCAA
MGAS315	AGCCCTTCTC	AAAAGGTTAT	r gttgaggta	A CAAGTGGCT	T GACTATGCAA
SSI-1	AGCCCTTCTC	AAAAGGTTA	r gttgaggta	A CAAGTGGCT	T GACTATGCAA
Manfredo	AGCCCTTCTC	AAAAGGTTA	r GTTGAGGTG	A CAAGTGGCT	T GACTATGCAA
MGAS8232	AGCCCTTCTC	AAAAGGTTA	r GTTGAGGTG	A CAAGCGGCT	T GACTATGCAA

# Figure 33 (continued)

	- 5 ,					
	ATCC700294 MGAS315 SSI-1 Manfredo MGAS8232	1201 GATAAGATTG CT GATAAGATTG CT GATAAGATTG CT GATAAGATTG CT GATAAGATTG CT	CAGCCGCT 'CAGCCGCT 'CAGCCT 'CAGCCGCT 'CAGCCT 'CAGCT 'CAGCCT 'CAGCT 'CAGCCT 'CAGCCT 'CAGCCT 'CAGCCT 'CAGCT 'CAGCCT 'CAGCCT 'CAGCCT 'CAGCCT 'CAGCCT 'CAGCCT 'CAGCCT 'CAGCT 'CAGCCT	TCCTGGCATG A TCCTGGCATG A TCCTGGCATG A	AAAGACGGTA 1 AAAGACGGTA 1 AAAGACGGTA 1	GGAGGTAGG GGAGGTAGG GGAGGTAGG
	ATCC700294 MGAS315 SSI-1 Manfredo MGAS8232	1251 AAGTATTGTT AA AAGTATTGTT AA AAGTATTGTT AA AAGTATTGTT AA AAGTATTGTT AA	ACCTTAA ACCTTAA ACCTTAA	9		
1	Figure 34	1				
	_	1				50
	ATCC700294	MFQLRKKMTR K	QLALLSAGV	LTCVVGGSYL	IMNHQQQEIV	SSVNKVKALT
	MGAS315	MFQLRKKMTR K	QLALLSAGV	LTCVVGGSYL	IMNHQQQEIV	SSVNKVKALT
	SSI-1	MFQLRKKMTR K	QLALLSAGV	LTCVVGGSYL	IMNHQQQEIV	SSVNKVKALT
	Manfredo	MFQLRKKMTR K	QLALLSAGV	LTCVVGGSYL	TWNHOOOETA	SSVNKVKALT
	MGAS8232	MFQLRKKMTR K	QLALLSAGV	LTCVVGGTYL	TMNHÖÖÖET A	SOANKAKHTI
		51				100
	ATCC700294	IKEAMEQGKD I	SLTLAGEVT	ANNSSKVKID	SSKGEVKEVF	
	MGAS315	IKEAMEQGKD I	SLTLAGEVT	ANNSSKVKID	SSKGEVKEVF	VKKGDVVKVG
	SSI-1	IKEAMEQGKD I	SLTLAGEVT	ANNSSKVKID	SSKGEVKEVF	VKKGDVVKVG
	Manfredo	IKEAMEQGKD I	SLTLAGEVT	ANNSSKVKID	SSKGEVKEVF	VKKGDVVKVG
	MGAS8232	IKEAMEQGKD I	SLTLAGEVT	ANNSSKVKID	SSKGEVKDVF	VKKGDVVKVG
		101				150
	ATCC700294	QPLFSYETSQ R	LTAQSSEFD	VQTKANQLQV	AKTNAALKWE	TYNRKVNEIN
	MGAS315	QPLFSYETSQ R	LTAQSSEFD	VQTKANQLQV	AKTNAALKWE	TYNKKVNEIN
	SSI-1	QPLFSYETSQ R	RLTAQSSEFD	VQTKANQLQV	AKTNAALKWE	TINKKANETN
	Manfredo	QPLFSYETSQ R	CLTAOSSEED	VQTKANQLQV	AKTNAALKWE	TINKKVNEIN
	MGAS8232	QPLFSYETSQ R	CLTAQSSEED	AĞTKYNĞPĞA	HUINHUDAME	TIMMMANATH
		151				200
	ATCC700294	TLKSRYNTAP D	DESLLEQIRS	AEDSVSQALS	DAKTADSDVK	TAQIELDKAN
	MGAS315	TLKSRYNTAP I	DESLLEQIRS	AEDSVSQALS	DAKTADSDVK	TAQIELDKAN
	SSI-1	TLKSRYNTAP D	DESLLEQIRS	AEDSVSQALS	DAKTADSDVK	TAQIELDKAN
	Manfredo	TLKSRYNTAP I	DESLLEQIRS	AEDSVSQALS	DAKTADSDVK	TAQIELDKAN
	MGAS8232	TLKSRYNTAP I	DESLLEQIRS	AEDSVSQALS	DAKTADSDVK	TAQIELDKAN
		001				250
	7 maa 7 0 0 2 0 4	201 ATATTEKGKL F	こくしゅいなるしゅん	CTTUSTNTDI	DNOGKGKKEN	
	ATCC700294 MGAS315	ATATTEKGKL I	EVDTVKSDIA	GTIVSLNTDI	PNOSKSKKEN	ETFMEIIDKS
	SSI-1	ATATTEKGKL I	EYDTVKSDTA	GTIVSLNTDL	PNOSKSKKEN	ETFMEIIDKS
	Manfredo	ATATMEKGKL I	EYDTVKSDTA	A GTIVSLNTDI	PNQSKSKKEN	ETFMEIIDKS
	MGAS8232	ATAATEKGKL I	EYDTVKSDT <i>F</i>	A GTIVSLNTDI	PNQSKSKKEN	ETFMEIIDKS
		251			. orranorasea	300
	ATCC700294	KMLVKGNISE	FURUKLKIG(	NAEATORKON Y KARATOKKON	I SKKWIGKVIÇ I GERMANCEUMO	VGNLKAEEKG VGNLKAEEKG
	MGAS315	KMLVKGNISE	もいらいたえ たよしん	S KAMALUDRUM S VAMATOKKON	I SKKMAGKIM. PVVMIGVALŽ	VGNLKAEEKG
	SSI-1 Manfredo					VGNLKAEEKG
	Maniredo MGAS8232	KMI/AKCMI GE	EDBDKI'KLU	NAEALDEKUN	SKKWTGKVTC	VGNLKAEEKG
	MGAGGZGZ	TOTA MONTON		E		•

# Figure 34 (continued)

ATCC700294 MGAS315 SSI-1 Manfredo MGAS8232	QGQGQGGNDQ QGQGQGGNDQ	QDNPNQAKFP QDNPNQAKFP QDNPNQAKFP	YVIELDQSDK YVIELDQSDK YVIELDQSDK	QPLIGSHTYV QPLIGSHTYV QPLIGSHTYV QPLIGSHTYV QPLIGSHTYV	NVLNNVPEAG NVLNNVPEAG NVLNNVPEAG
ATCC700294 MGAS315 SSI-1 Manfredo MGAS8232	KIVLKETFTM KIVLKETFTM KIVLKETFTM	AENGKTYVWK AENGKTYVWK AENGKTYVWK	VDKNKVKKQE VDKNKVKKQE	IKTKPFSKGY IKTKPFSKGY IKTKPFSKGY IKTKPFSKGY IKTKPFSKGY	VEVTSGLTMQ VEVTSGLTMQ VEVTSGLTMQ
ATCC700294 MGAS315 SSI-1 Manfredo MGAS8232	DKIAQPLPGM DKIAQPLPGM DKIAQPLPGM	KDGMEVGSIV KDGMEVGSIV KDGMEVGSIV KDGMEVGSIV	KP KP KP		
Figure 35					
ATCC700294 MGAS315 SSI-1 Manfredo MGAS8232	ATGATAAAAC ATGATAAAAC ATGATAAAAC	GATGTAAAGG GATGTAAAGG GATGTAAAGG	AATTGGTCTA AATTGGTCTA AATTGGTCTA	GCCTTAATGG GTCTTAATGG GTCTTAATGG GCCTTAATGG GTCTTAATGG	CCTTCTTTTT CCTTCTTTTT CCTTCTTTTT
ATCC700294 MGAS315 SSI-1 Manfredo MGAS8232	GGTAGCTTGT GGTAGCTTGT GGTAGCTTGT	GTAAATCAGC GTAAATCAGC GTGAATCAGC	ACCCTAAAAC ACCCTAAAAC ACCCTAAAAC	GGCTAAAGAG GGCTAAAGAG GGCTAAAGAG GGCTAAAGAG GGCTAAAGAG	ACTGAACAGC ACTGAACAGC ACTGAACAGC
ATCC700294 MGAS315 SSI-1 Manfredo MGAS8232	AGAGAATTGT AGAGAATTGT AGAGAATTGT	AGCCACTTCG AGCCACTTCG	GTTGCTGTGG GTTGCTGTGG GTTGCTGTGG		TGACCGTTTA TGACCGTTTA TGACCGTTTA
ATCC700294 MGAS315 SSI-1 Manfredo MGAS8232	AATTTAGACC AATTTAGACC AATTTAGACC	TCGTTGGGGT TCGTTGGGGT TCGTTGGGGT	TTGTGATAGT TTGTGATAGT TTGTGATAGT	AAATTATATA AAATTATATA AAATTATATA AAATTATATA AAATTATATA	CCCTTCCTAA CCCTTCCTAA
ATCC700294 MGAS315 SSI-1 Manfredo MGAS8232	ACGCTATGAT ACGCTATGAT ACGCTATGAT	GCTGTTAAGC GCTGTTAAGC GCTGTTAAGC	GTGTGGGTTT GTGTGGGTTT GTGTGGGTTT	ACCCATGAAT ACCCATGAAT ACCCATGAAT ACCCATGAAT ACCCATGAAT	CCTGATATAG CCTGATATAG CCTGATATAG

Figure 35 (continued)

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	251				300
ATCC700294	AGTTGATTGC	TTCTTTGAAA	CCAACTTGGA	ТТТТСАСТСС	
MGAS315	AGTTGATTGC		CCAACTTGGA		CAATTCTTTA
SSI-1	AGTTGATTGC				
			CCAACTTGGA		CAATTCTTTA
Manfredo	AGTTGATTGC		CCAACTTGGA		CAATTCTTTA
MGAS8232	AGTTGATTGC	TTCTTTGAAA	CCAACTTGGA	TTTTGAGTCC	CAATTCTTTA
	301				350
ATCC700294	CAAGAAGATT	TGGAACCCAA	GTATCAAAAA	ттссатастс	
MGAS315	CAAGAAGATT		GTATCAAAAA		
SSI-1	CAAGAAGATT		GTATCAAAAA		
Manfredo	CAAGAAGATT		GTATCAAAAA		
MGAS8232	CAAGAAGATT	TGGAACCCAA	GTATCAAAAA	TTGGATACTG	AGTATGGTTT
	351				400
ATCC700294	ΤΤΤΟΔΑΟΤΤΑ	ССАВСТСТТС	AGGGCATGTA	CCACTCCATT	GATGATTTAG
MGAS315			AGGGCATGTA		
					GATGATTTAG
SSI-1			AGGGCATGTA		GATGATTTAG
Manfredo			AGGGCATGTA		GATGATTTAG
MGAS8232	TTTGAACTTA	CGAAGTGTTG	AGGGCATGTA	CCAGTCTATT	GATGATTTAG
	401				450
ATCC700294	GGAACCTTTT	CCAACGTCAA	CAAGAAGCAA	AAGAATTGCG	
MGAS315	GGAACCTTTT		CAAGAAGCAA		
SSI-1	GGAACCTTTT		CAAGAAGCAA		
			~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		~~~~~~~~~~~
Manfredo	GGAACCTTTT			AAGAATTGCG	
Manfredo MGAS8232	GGAACCTTTT GGAACCTTTT		CAAGAAGCAA		
MGAS8232	GGAACCTTTT 451	CCAACGTCAA	CAAGAAGCAA	AAGAATTGCG	CCAGCAATAC 500
MGAS8232 ATCC700294	GGAACCTTTT 451 CAGGACTATT	CCAACGTCAA	CAAGAAGCAA	AAGAATTGCG CGTAAGGGGA	CCAGCAATAC 500 AGAAAAAGCC
MGAS8232 ATCC700294 MGAS315	GGAACCTTTT 451 CAGGACTATT CAGGACTATT	CCAACGTCAA ATCGTGCTTT ATCGTGCTTT	CAAGAAGCAA CCAAGCTAAA CCAAGCTAAA	AAGAATTGCG CGTAAGGGGA CGCAAGGGGA	CCAGCAATAC 500 AGAAAAAGCC AGAAAAAGCC
MGAS8232  ATCC700294  MGAS315  SSI-1	GGAACCTTTT  451 CAGGACTATT CAGGACTATT CAGGACTATT	CCAACGTCAA  ATCGTGCTTT ATCGTGCTTT ATCGTGCTTT	CCAAGCTAAA CCAAGCTAAA CCAAGCTAAA	AAGAATTGCG CGTAAGGGGA CGCAAGGGGA CGCAAGGGGA	CCAGCAATAC 500 AGAAAAAGCC AGAAAAAGCC AGAAAAAGCC
MGAS8232  ATCC700294  MGAS315  SSI-1  Manfredo	GGAACCTTTT  451 CAGGACTATT CAGGACTATT CAGGACTATT CAGGACTATT	ATCGTGCTTT ATCGTGCTTT ATCGTGCTTT ATCGTGCTTT	CCAAGCTAAA CCAAGCTAAA CCAAGCTAAA CCAAGCTAAA	AAGAATTGCG CGTAAGGGGA CGCAAGGGGA CGCAAGGGGA	500 AGAAAAAGCC AGAAAAAGCC AGAAAAAGCC AGAAAAAGCC
MGAS8232  ATCC700294  MGAS315  SSI-1	GGAACCTTTT  451 CAGGACTATT CAGGACTATT CAGGACTATT	CCAACGTCAA  ATCGTGCTTT ATCGTGCTTT ATCGTGCTTT	CCAAGCTAAA CCAAGCTAAA CCAAGCTAAA CCAAGCTAAA	AAGAATTGCG CGTAAGGGGA CGCAAGGGGA CGCAAGGGGA	CCAGCAATAC 500 AGAAAAAGCC AGAAAAAGCC AGAAAAAGCC
MGAS8232  ATCC700294  MGAS315  SSI-1  Manfredo	GGAACCTTTT  451 CAGGACTATT CAGGACTATT CAGGACTATT CAGGACTATT	ATCGTGCTTT ATCGTGCTTT ATCGTGCTTT ATCGTGCTTT	CCAAGCTAAA CCAAGCTAAA CCAAGCTAAA CCAAGCTAAA	AAGAATTGCG CGTAAGGGGA CGCAAGGGGA CGCAAGGGGA	500 AGAAAAAGCC AGAAAAAGCC AGAAAAAGCC AGAAAAAGCC
MGAS8232  ATCC700294  MGAS315  SSI-1  Manfredo	GGAACCTTTT  451 CAGGACTATT CAGGACTATT CAGGACTATT CAGGACTATT	ATCGTGCTTT ATCGTGCTTT ATCGTGCTTT ATCGTGCTTT	CCAAGCTAAA CCAAGCTAAA CCAAGCTAAA CCAAGCTAAA	AAGAATTGCG CGTAAGGGGA CGCAAGGGGA CGCAAGGGGA	500 AGAAAAAGCC AGAAAAAGCC AGAAAAAGCC AGAAAAAGCC
MGAS8232  ATCC700294  MGAS315  SSI-1  Manfredo	GGAACCTTTT  451 CAGGACTATT CAGGACTATT CAGGACTATT CAGGACTATT CAGGACTATT	ATCGTGCTTT ATCGTGCTTT ATCGTGCTTT ATCGTGCTTT	CCAAGCTAAA CCAAGCTAAA CCAAGCTAAA CCAAGCTAAA	AAGAATTGCG CGTAAGGGGA CGCAAGGGGA CGCAAGGGGA CGTAAGGGGA	500 AGAAAAAGCC AGAAAAAGCC AGAAAAAGCC AGAAAAAGCC AGAAAAAGCC AGAAAAAGCC
MGAS8232  ATCC700294  MGAS315  SSI-1  Manfredo  MGAS8232  ATCC700294	GGAACCTTTT  451 CAGGACTATT CAGGACTATT CAGGACTATT CAGGACTATT CAGGACTATT CAGGACTATT CAGGACTATT TAAAGTGCTT	ATCGTGCTTT ATCGTGCTTT ATCGTGCTTT ATCGTGCTTT ATCGTGCTTT ATCGTGCTTT	CCAAGCTAAA CCAAGCTAAA CCAAGCTAAA CCAAGCTAAA CCAAGCTAAA CCAAGCTAAA	AAGAATTGCG CGTAAGGGGA CGCAAGGGGA CGTAAGGGGA CGTAAGGGGA TAGTTATTTG	500 AGAAAAAGCC AGAAAAAGCC AGAAAAAGCC AGAAAAAGCC AGAAAAAGCC AGAAAAAGCC AGAAAAAGCC AGAAAAAGCC
MGAS8232  ATCC700294 MGAS315 SSI-1 Manfredo MGAS8232  ATCC700294 MGAS315	GGAACCTTTT  451 CAGGACTATT CAGGACTATT CAGGACTATT CAGGACTATT CAGGACTATT CAGGACTATT TAAAGTGCTT TAAAGTGCTT	ATCGTGCTTT ATCGTGCTTT ATCGTGCTTT ATCGTGCTTT ATCGTGCTTT ATCGTGCTTT	CCAAGCTAAA CCAAGCTAAA CCAAGCTAAA CCAAGCTAAA CCAAGCTAAA CCAAGCTAAA GCTTGCCAGG	AAGAATTGCG CGTAAGGGGA CGCAAGGGGA CGCAAGGGGA CGTAAGGGGA TAGTTATTTG TAGTTATTTG	500 AGAAAAAGCC AGAAAAAGCC AGAAAAAGCC AGAAAAAGCC AGAAAAAGCC AGAAAAAGCC AGAAAAAGCC GTGGCGACGA GTGGCGACGA
MGAS8232  ATCC700294 MGAS315 SSI-1 Manfredo MGAS8232  ATCC700294 MGAS315 SSI-1	GGAACCTTTT  451 CAGGACTATT CAGGACTATT CAGGACTATT CAGGACTATT CAGGACTATT CAGGACTATT TAAAGTGCTT TAAAGTGCTT TAAAGTGCTT	ATCGTGCTTT ATCGTGCTTT ATCGTGCTTT ATCGTGCTTT ATCGTGCTTT ATCGTGCTTT ATCTTATGG ATTCTTATGG ATTCTTATGG	CAAGAAGCAA CCAAGCTAAA CCAAGCTAAA CCAAGCTAAA CCAAGCTAAA CCAAGCTAAA GCTTGCCAGG GCTTGCCAGG GCTTGCCAGG	AAGAATTGCG CGTAAGGGGA CGCAAGGGGA CGCAAGGGGA CGTAAGGGGA CGTAAGGGGA TAGTTATTTG TAGTTATTTG TAGTTATTTG	500 AGAAAAAGCC AGAAAAAGCC AGAAAAAGCC AGAAAAAGCC AGAAAAAGCC AGAAAAAGCC AGAAAAAGCC GTGGCGACGA GTGGCGACGA GTGGCGACGA
MGAS8232  ATCC700294 MGAS315 SSI-1 Manfredo MGAS8232  ATCC700294 MGAS315 SSI-1 Manfredo	GGAACCTTTT  451 CAGGACTATT CAGGACTATT CAGGACTATT CAGGACTATT CAGGACTATT TAAAGTGCTT TAAAGTGCTT TAAAGTGCTT TAAAGTGCTT	ATCGTGCTTT ATCGTGCTTT ATCGTGCTTT ATCGTGCTTT ATCGTGCTTT ATCGTGCTTT ATCTTATGG ATTCTTATGG ATTCTTATGG ATTCTTATGG	CAAGAAGCAA CCAAGCTAAA CCAAGCTAAA CCAAGCTAAA CCAAGCTAAA CCAAGCTAAA GCTTGCCAGG GCTTGCCAGG GCTTGCCAGG GCTTGCCAGG	AAGAATTGCG CGTAAGGGGA CGCAAGGGGA CGCAAGGGGA CGTAAGGGGA TAGTTATTTG TAGTTATTTG TAGTTATTTG TAGTTATTTG	500 AGAAAAAGCC AGAAAAAGCC AGAAAAAGCC AGAAAAAGCC AGAAAAAGCC AGAAAAAGCC GTGGCGACGA GTGGCGACGA GTGGCGACGA GTGGCGACGA
MGAS8232  ATCC700294 MGAS315 SSI-1 Manfredo MGAS8232  ATCC700294 MGAS315 SSI-1	GGAACCTTTT  451 CAGGACTATT CAGGACTATT CAGGACTATT CAGGACTATT CAGGACTATT CAGGACTATT TAAAGTGCTT TAAAGTGCTT TAAAGTGCTT	ATCGTGCTTT ATCGTGCTTT ATCGTGCTTT ATCGTGCTTT ATCGTGCTTT ATCGTGCTTT ATCTTATGG ATTCTTATGG ATTCTTATGG ATTCTTATGG	CAAGAAGCAA CCAAGCTAAA CCAAGCTAAA CCAAGCTAAA CCAAGCTAAA CCAAGCTAAA GCTTGCCAGG GCTTGCCAGG GCTTGCCAGG	AAGAATTGCG CGTAAGGGGA CGCAAGGGGA CGCAAGGGGA CGTAAGGGGA TAGTTATTTG TAGTTATTTG TAGTTATTTG TAGTTATTTG	500 AGAAAAAGCC AGAAAAAGCC AGAAAAAGCC AGAAAAAGCC AGAAAAAGCC AGAAAAAGCC GTGGCGACGA GTGGCGACGA GTGGCGACGA GTGGCGACGA
MGAS8232  ATCC700294 MGAS315 SSI-1 Manfredo MGAS8232  ATCC700294 MGAS315 SSI-1 Manfredo	GGAACCTTTT  451 CAGGACTATT CAGGACTATT CAGGACTATT CAGGACTATT CAGGACTATT TAAAGTGCTT TAAAGTGCTT TAAAGTGCTT TAAAGTGCTT TAAAGTGCTT	ATCGTGCTTT ATCGTGCTTT ATCGTGCTTT ATCGTGCTTT ATCGTGCTTT ATCGTGCTTT ATCTTATGG ATTCTTATGG ATTCTTATGG ATTCTTATGG	CAAGAAGCAA CCAAGCTAAA CCAAGCTAAA CCAAGCTAAA CCAAGCTAAA CCAAGCTAAA GCTTGCCAGG GCTTGCCAGG GCTTGCCAGG GCTTGCCAGG	AAGAATTGCG CGTAAGGGGA CGCAAGGGGA CGCAAGGGGA CGTAAGGGGA TAGTTATTTG TAGTTATTTG TAGTTATTTG TAGTTATTTG	500 AGAAAAAGCC AGAAAAAGCC AGAAAAAGCC AGAAAAAGCC AGAAAAAGCC AGAAAAAGCC GTGGCGACGA GTGGCGACGA GTGGCGACGA GTGGCGACGA GTGGCGACGA GTGGCGACGA GTGGCGACGA
MGAS8232  ATCC700294 MGAS315 SSI-1 Manfredo MGAS8232  ATCC700294 MGAS315 SSI-1 Manfredo	GGAACCTTTT  451 CAGGACTATT CAGGACTATT CAGGACTATT CAGGACTATT CAGGACTATT TAAAGTGCTT TAAAGTGCTT TAAAGTGCTT TAAAGTGCTT	ATCGTGCTTT ATCGTGCTTT ATCGTGCTTT ATCGTGCTTT ATCGTGCTTT ATCGTGCTTT ATCTTATGG ATTCTTATGG ATTCTTATGG ATTCTTATGG	CAAGAAGCAA CCAAGCTAAA CCAAGCTAAA CCAAGCTAAA CCAAGCTAAA CCAAGCTAAA GCTTGCCAGG GCTTGCCAGG GCTTGCCAGG GCTTGCCAGG	AAGAATTGCG CGTAAGGGGA CGCAAGGGGA CGCAAGGGGA CGTAAGGGGA TAGTTATTTG TAGTTATTTG TAGTTATTTG TAGTTATTTG	500 AGAAAAAGCC AGAAAAAGCC AGAAAAAGCC AGAAAAAGCC AGAAAAAGCC AGAAAAAGCC GTGGCGACGA GTGGCGACGA GTGGCGACGA GTGGCGACGA
MGAS8232  ATCC700294 MGAS315 SSI-1 Manfredo MGAS8232  ATCC700294 MGAS315 SSI-1 Manfredo	GGAACCTTTT  451 CAGGACTATT CAGGACTATT CAGGACTATT CAGGACTATT CAGGACTATT TAAAGTGCTT	ATCGTGCTTT ATCGTGCTTT ATCGTGCTTT ATCGTGCTTT ATCGTGCTTT ATCGTGCTTT ATCTTATGG ATTCTTATGG ATTCTTATGG ATTCTTATGG ATTCTTATGG	CAAGAAGCAA  CCAAGCTAAA  CCAAGCTAAA  CCAAGCTAAA  CCAAGCTAAA  CCAAGCTAAA  GCTTGCCAGG GCTTGCCAGG GCTTGCCAGG GCTTGCCAGG GCTTGCCAGG GCTTGCCAGG	AAGAATTGCG CGTAAGGGGA CGCAAGGGGA CGCAAGGGGA CGTAAGGGGA TAGTTATTTG TAGTTATTTG TAGTTATTTG TAGTTATTTG TAGTTATTTG	500 AGAAAAAGCC AGAAAAAGCC AGAAAAAGCC AGAAAAAGCC AGAAAAAGCC AGAAAAAGCC GTGGCGACGA GTGGCGACGA GTGGCGACGA GTGGCGACGA GTGGCGACGA GTGGCGACGA GTGGCGACGA
MGAS8232  ATCC700294 MGAS315 SSI-1 Manfredo MGAS8232  ATCC700294 MGAS315 SSI-1 Manfredo MGAS8232	GGAACCTTTT  451 CAGGACTATT CAGGACTATT CAGGACTATT CAGGACTATT CAGGACTATT TAAAGTGCTT	ATCGTGCTTT ATCGTGCTTT ATCGTGCTTT ATCGTGCTTT ATCGTGCTTT ATCGTGCTTT ATCTTATGG ATTCTTATGG ATTCTTATGG ATTCTTATGG ATTCTTATGG ATTCTTATGG ATTCTTATGG ATTCTTATGG	CAAGAAGCAA  CCAAGCTAAA  CCAAGCTAAA  CCAAGCTAAA  CCAAGCTAAA  CCAAGCTAAA  GCTTGCCAGG GCTTGCCAGG GCTTGCCAGG GCTTGCCAGG GCTTGCCAGG GCTTGCCAGG GCTTGCCAGG GCTTGCCAGG GCTTGCCAGG	AAGAATTGCG  CGTAAGGGGA  CGCAAGGGGA  CGCAAGGGGA  CGTAAGGGGA  TAGTTATTTG	CCAGCAATAC  500 AGAAAAAGCC AGAAAAAGCC AGAAAAAGCC AGAAAAAGCC AGAAAAAGCC AGAACC AGACCA 550 GTGGCGACGA
MGAS8232  ATCC700294 MGAS315 SSI-1 Manfredo MGAS8232  ATCC700294 MGAS315 SSI-1 Manfredo MGAS8232  ATCC700294 MGAS8232	GGAACCTTTT  451 CAGGACTATT CAGGACTATT CAGGACTATT CAGGACTATT CAGGACTATT TAAAGTGCTT AAAGTGCTT ACCAATCTTA	ATCGTGCTTT ATCGTGCTTT ATCGTGCTTT ATCGTGCTTT ATCGTGCTTT ATCGTGCTTT ATCTTATGG ATTCTTATGG ATTCTTATGG ATTCTTATGG ATTCTTATGG ATTCTTATGG ATTCTTATGG ATTCTTATGG ATTCTTATGG ATTCTTATGG	CAAGAAGCAA  CCAAGCTAAA  CCAAGCTAAA  CCAAGCTAAA  CCAAGCTAAA  CCAAGCTAAA  CCAAGCTAAA  GCTTGCCAGG GCTTGCCAGG GCTTGCCAGG GCTTGCCAGG GCTTGCCAGG GCTTGCCAGG GCTTGCCAGG GCTTTTTGGACT CTTTTGGACT	AAGAATTGCG CGTAAGGGGA CGCAAGGGGA CGCAAGGGGA CGTAAGGGGA TAGTTATTTG	CCAGCAATAC  500 AGAAAAAGCC AGAAAAAGCC AGAAAAAGCC AGAAAAAGCC AGAAAAAGCC AGAACC AGAAAAAGCC AGACCA GTGGCGACGA
MGAS8232  ATCC700294 MGAS315 SSI-1 Manfredo MGAS8232  ATCC700294 MGAS315 SSI-1 Manfredo MGAS8232  ATCC700294 MGAS315 SSI-1 SSI-1 SSI-1 SSI-1 SSI-1 SSI-1	GGAACCTTTT  451 CAGGACTATT CAGGACTATT CAGGACTATT CAGGACTATT CAGGACTATT TAAAGTGCTT TAAAGTGCTT TAAAGTGCTT TAAAGTGCTT TAAAGTGCTT TAAAGTGCTT TAAAGTGCTT TAAAGTGCTT TAAAGTGCTT AAAGTGCTT AAAGTGCTT AAAGTGCTT AAAGTGCTT AAAGTGCTT AAAGTGCTT ACCAATCTTA ACCAATCTTA	ATCGTGCTTT ATCGTGCTTT ATCGTGCTTT ATCGTGCTTT ATCGTGCTTT ATCGTGCTTT ATCTTATGG ATTCTTATGG ATTCTTATGG ATTCTTATGG ATTCTTATGG ATTCTTATGG ATTCTTATGG TGTAGGGAAT TGTAGGGAAT TGTAGGGAAT	CAAGAAGCAA  CCAAGCTAAA CCAAGCTAAA CCAAGCTAAA CCAAGCTAAA CCAAGCTAAA CCAAGCTAAA GCTTGCCAGG GCTTGCCAGG GCTTGCCAGG GCTTGCCAGG GCTTGCCAGG GCTTTTTGGACT CTTTTGGACT CTTTTGGACT	AAGAATTGCG  CGTAAGGGGA CGCAAGGGGA CGCAAGGGGA CGTAAGGGGA TAGTTATTTG	CCAGCAATAC  500 AGAAAAAGCC  550 GTGGCGACGA
MGAS8232  ATCC700294 MGAS315 SSI-1 Manfredo MGAS8232  ATCC700294 MGAS315 SSI-1 Manfredo MGAS8232  ATCC700294 MGAS315 SSI-1 Manfredo MGAS315 SSI-1 Manfredo	GGAACCTTTT  451 CAGGACTATT CAGGACTATT CAGGACTATT CAGGACTATT CAGGACTATT TAAAGTGCTT TAAAGTGCTT TAAAGTGCTT TAAAGTGCTT TAAAGTGCTT TAAAGTGCTT TAAAGTGCTT TAAAGTGCTT AAAGTGCTT AAAGTGCTT AAAGTGCTT ACCAATCTTA ACCAATCTTA ACCAATCTTA	ATCGTGCTTT ATCGTGCTTT ATCGTGCTTT ATCGTGCTTT ATCGTGCTTT ATCGTGCTTT ATCTTATGG ATTCTTATGG ATTCTTATGG ATTCTTATGG ATTCTTATGG ATTCTTATGG TGTAGGGAAT TGTAGGGAAT TGTAGGGAAT	CAAGAAGCAA  CCAAGCTAAA CCAAGCTAAA CCAAGCTAAA CCAAGCTAAA CCAAGCTAAA CCAAGCTAAA GCTTGCCAGG GCTTGCCAGG GCTTGCCAGG GCTTGCCAGG GCTTGCCAGG GCTTTTGGACT CTTTTGGACT CTTTTGGACT CTTTTGGACT	AAGAATTGCG  CGTAAGGGGA  CGCAAGGGGA  CGCAAGGGGA  CGTAAGGGGA  CGTAAGGGGA  TAGTTATTTG  TGGCAGGTGG  TGGCAGGTGG  TGGCAGGTGG	CCAGCAATAC  500 AGAAAAAGCC  550 GTGGCGACGA GTGGCGACGA GTGGCGACGA GTGGCGACGA GTGGCGACGA GTGGCGACGA GTGGCGACGA TGAGAATGTT TGAGAATGTT TGAGAATGTT
MGAS8232  ATCC700294 MGAS315 SSI-1 Manfredo MGAS8232  ATCC700294 MGAS315 SSI-1 Manfredo MGAS8232  ATCC700294 MGAS315 SSI-1 SSI-1 SSI-1 SSI-1 SSI-1 SSI-1	GGAACCTTTT  451 CAGGACTATT CAGGACTATT CAGGACTATT CAGGACTATT CAGGACTATT TAAAGTGCTT TAAAGTGCTT TAAAGTGCTT TAAAGTGCTT TAAAGTGCTT TAAAGTGCTT TAAAGTGCTT TAAAGTGCTT AAAGTGCTT AAAGTGCTT AAAGTGCTT ACCAATCTTA ACCAATCTTA ACCAATCTTA	ATCGTGCTTT ATCGTGCTTT ATCGTGCTTT ATCGTGCTTT ATCGTGCTTT ATCGTGCTTT ATCTTATGG ATTCTTATGG ATTCTTATGG ATTCTTATGG ATTCTTATGG ATTCTTATGG TGTAGGGAAT TGTAGGGAAT TGTAGGGAAT	CAAGAAGCAA  CCAAGCTAAA CCAAGCTAAA CCAAGCTAAA CCAAGCTAAA CCAAGCTAAA CCAAGCTAAA GCTTGCCAGG GCTTGCCAGG GCTTGCCAGG GCTTGCCAGG GCTTGCCAGG GCTTTTGGACT CTTTTGGACT CTTTTGGACT CTTTTTGGACT	AAGAATTGCG  CGTAAGGGGA  CGCAAGGGGA  CGCAAGGGGA  CGTAAGGGGA  CGTAAGGGGA  TAGTTATTTG  TGGCAGGTGG  TGGCAGGTGG  TGGCAGGTGG	CCAGCAATAC  500 AGAAAAAGCC  550 GTGGCGACGA
MGAS8232  ATCC700294 MGAS315 SSI-1 Manfredo MGAS8232  ATCC700294 MGAS315 SSI-1 Manfredo MGAS8232  ATCC700294 MGAS315 SSI-1 Manfredo MGAS315 SSI-1 Manfredo	GGAACCTTTT  451 CAGGACTATT CAGGACTATT CAGGACTATT CAGGACTATT CAGGACTATT CAGGACTATT TAAAGTGCTT TAAAGTGCTT TAAAGTGCTT TAAAGTGCTT TAAAGTGCTT TAAAGTGCTT AAAGTGCTT AAAGTGCTT AAAGTGCTT AAAGTGCTT ACCAATCTTA ACCAATCTTA ACCAATCTTA ACCAATCTTA	ATCGTGCTTT ATCGTGCTTT ATCGTGCTTT ATCGTGCTTT ATCGTGCTTT ATCGTGCTTT ATCTTATGG ATTCTTATGG ATTCTTATGG ATTCTTATGG ATTCTTATGG ATTCTTATGG TGTAGGGAAT TGTAGGGAAT TGTAGGGAAT	CAAGAAGCAA  CCAAGCTAAA CCAAGCTAAA CCAAGCTAAA CCAAGCTAAA CCAAGCTAAA CCAAGCTAAA GCTTGCCAGG GCTTGCCAGG GCTTGCCAGG GCTTGCCAGG GCTTGCCAGG GCTTTTGGACT CTTTTGGACT CTTTTGGACT CTTTTTGGACT	AAGAATTGCG  CGTAAGGGGA  CGCAAGGGGA  CGCAAGGGGA  CGTAAGGGGA  CGTAAGGGGA  TAGTTATTTG  TGGCAGGTGG  TGGCAGGTGG  TGGCAGGTGG	CCAGCAATAC  500 AGAAAAAGCC AGAAAAGCC AGAAAAAGCC AGAAAAAGCC AGAAAAAAGCC AGAAAAAAAGCC AGAAAAAAAGCC AGAAAAAAGCC AGAAAAAAAGCC AGAAAAAAAA
MGAS8232  ATCC700294 MGAS315 SSI-1 Manfredo MGAS8232  ATCC700294 MGAS315 SSI-1 Manfredo MGAS8232  ATCC700294 MGAS315 SSI-1 Manfredo MGAS8232	GGAACCTTTT  451 CAGGACTATT CAGGACTATT CAGGACTATT CAGGACTATT CAGGACTATT CAGGACTATT TAAAGTGCTT TAAAGTGCTT TAAAGTGCTT TAAAGTGCTT TAAAGTGCTT TAAAGTGCTT ACCAATCTTA ACCAATCTTA ACCAATCTTA ACCAATCTTA ACCAATCTTA	ATCGTGCTTT ATCGTGCTTT ATCGTGCTTT ATCGTGCTTT ATCGTGCTTT ATCGTGCTTT ATCTTATGG ATTCTTATGG ATTCTTATGG ATTCTTATGG ATTCTTATGG ATTCTTATGG ATTCTTATGG TGTAGGGAAT TGTAGGGAAT TGTAGGGAAT TGTAGGGAAT TGTAGGGAAT	CAAGAAGCAA  CCAAGCTAAA CCAAGCTAAA CCAAGCTAAA CCAAGCTAAA CCAAGCTAAA CCAAGCTAAA GCTTGCCAGG GCTTGCCAGG GCTTGCCAGG GCTTGCCAGG GCTTGCCAGG GCTTTTGGACT CTTTTGGACT CTTTTGGACT CTTTTGGACT CTTTTTGGACT	AAGAATTGCG  CGTAAGGGGA  CGCAAGGGGA  CGCAAGGGGA  CGTAAGGGGA  CGTAAGGGGA  TAGTTATTTG  TGGCAGGTGG  TGGCAGGTGG  TGGCAGGTGG  TGGCAGGTGG  TGGCAGGTGG	CCAGCAATAC  500 AGAAAAAGCC AGAAAAGCC AGAAAAGCC AGAAAAGCC AGAAAAGCC AGAAAAGCC AGAAAAGCC AGAAAAGCC AGAAAAGCC AGAAAAAGCC AGAAAAAAGCC AGAAAAAAAGCC AGAAAAAAGCC AGAAAAAAAGCC AGAAAAAAAGCC AGAAAAAAAGCC AGAAAAAAAGCC AGAAAAAAAGCC AGAAAAAAAA
MGAS8232  ATCC700294 MGAS315 SSI-1 Manfredo MGAS8232  ATCC700294 MGAS315 SSI-1 Manfredo MGAS8232  ATCC700294 MGAS315 SSI-1 Manfredo MGAS315 SSI-1 Manfredo	GGAACCTTTT  451 CAGGACTATT CAGGACTATT CAGGACTATT CAGGACTATT CAGGACTATT CAGGACTATT TAAAGTGCTT TAAAGTGCTT TAAAGTGCTT TAAAGTGCTT TAAAGTGCTT TAAAGTGCTT ACCAATCTTA ACCAATCTTA ACCAATCTTA ACCAATCTTA ACCAATCTTA	ATCGTGCTTT ATCGTGCTTT ATCGTGCTTT ATCGTGCTTT ATCGTGCTTT ATCGTGCTTT ATCTTATGG ATTCTTATGG ATTCTTATGG ATTCTTATGG ATTCTTATGG ATTCTTATGG ATTCTTATGG TGTAGGGAAT TGTAGGGAAT TGTAGGGAAT TGTAGGGAAT TGTAGGGAAT	CAAGAAGCAA  CCAAGCTAAA CCAAGCTAAA CCAAGCTAAA CCAAGCTAAA CCAAGCTAAA CCAAGCTAAA GCTTGCCAGG GCTTGCCAGG GCTTGCCAGG GCTTGCCAGG GCTTGCCAGG GCTTTTGGACT CTTTTGGACT CTTTTGGACT CTTTTGGACT CTTTTTGGACT	AAGAATTGCG  CGTAAGGGGA  CGCAAGGGGA  CGCAAGGGGA  CGTAAGGGGA  CGTAAGGGGA  TAGTTATTTG  TGGCAGGTGG  TGGCAGGTGG  TGGCAGGTGG  TGGCAGGTGG  TGGCAGGTGG	CCAGCAATAC  500 AGAAAAAGCC AGAAAAGCC AGAAAAAGCC AGAAAAAGCC AGAAAAAAGCC AGAAAAAAAGCC AGAAAAAAAGCC AGAAAAAAGCC AGAAAAAAAGCC AGAAAAAAAA
MGAS8232  ATCC700294 MGAS315 SSI-1 Manfredo MGAS8232  ATCC700294 MGAS315 SSI-1 Manfredo MGAS8232  ATCC700294 MGAS315 SSI-1 Manfredo MGAS8232	GGAACCTTTT  451 CAGGACTATT CAGGACTATT CAGGACTATT CAGGACTATT CAGGACTATT CAGGACTATT TAAAGTGCTT TAAAGTGCTT TAAAGTGCTT TAAAGTGCTT TAAAGTGCTT TAAAGTGCTT AACCAATCTTA ACCAATCTTA	ATCGTGCTTT ATCGTGCTTT ATCGTGCTTT ATCGTGCTTT ATCGTGCTTT ATCGTGCTTT ATCTTATGG ATTCTTATGG A	CAAGAAGCAA  CCAAGCTAAA CCAAGCTAAA CCAAGCTAAA CCAAGCTAAA CCAAGCTAAA CCAAGCTAAA GCTTGCCAGG GCTTGCCAGG GCTTGCCAGG GCTTGCCAGG GCTTGCCAGG GCTTTTGGACT CTTTTGGACT CTTTTGGACT CTTTTGGACT CTTTTTGGACT CTTTTTGGACT CTTTTTGACT CTTTTTGACT CTTTTTTTTTT	AAGAATTGCG  CGTAAGGGGA CGCAAGGGGA CGCAAGGGGA CGTAAGGGGA CGTAAGGGGA TAGTTATTTG TAGCAGGTGG TGGCAGGTGG TGGCAGGTGG TGGCAGGTGG TGGCAGGTGG TGGCAGGTGG TGGCAGGTGG	CCAGCAATAC  500 AGAAAAAGCC AGAAAAGCC AGAAAAGCC AGAAAAGCC AGAAAAGCC AGAAAAGCC AGAAAAGCC AGAAAAGCC AGAAAAGCC AGAAAAAGCC AGAAAAAAGCC AGAAAAAAAGCC AGAAAAAAGCC AGAAAAAAAGCC AGAAAAAAAGCC AGAAAAAAAGCC AGAAAAAAAGCC AGAAAAAAAGCC AGAAAAAAAA
MGAS8232  ATCC700294 MGAS315 SSI-1 Manfredo MGAS8232  ATCC700294 MGAS315 SSI-1 Manfredo MGAS8232  ATCC700294 MGAS315 SSI-1 Manfredo MGAS315 SSI-1 Manfredo MGAS315 SSI-1 Manfredo MGAS3232	GGAACCTTTT  451 CAGGACTATT CAGGACTATT CAGGACTATT CAGGACTATT CAGGACTATT CAGGACTATT TAAAGTGCTT TAAAGTGCTT TAAAGTGCTT TAAAGTGCTT TAAAGTGCTT TAAAGTGCTT ACCAATCTTA	ATCGTGCTTT ATCGTGCTTT ATCGTGCTTT ATCGTGCTTT ATCGTGCTTT ATCGTGCTTT ATCTTATGG ATTCTTATGG A	CCAAGCTAAA CCAAGCTAAA CCAAGCTAAA CCAAGCTAAA CCAAGCTAAA CCAAGCTAAA CCAAGCTAAA GCTTGCCAGG GCTTGCCAGG GCTTGCCAGG GCTTGCCAGG GCTTGCCAGG GCTTTTGGACT CTTTTGGACT CTTTTGGACT CTTTTGGACT CTTTTTGACT CTTTTTGACT CTTTTTTTTTT	AAGAATTGCG  CGTAAGGGGA CGCAAGGGGA CGCAAGGGGA CGTAAGGGGA CGTAAGGGGA TAGTTATTTG TAGTTATTTTG TAGTTATTTG TAGTTATTTTG TAGTTATTTTG TAGTTATTTTG TAGTTATTTG TAGTTT	CCAGCAATAC  500 AGAAAAAGCC  550 GTGGCGACGA GTGGCGACGA GTGGCGACGA GTGGCGACGA TGAGAATGTT TGAGAATGTT TGAGAATGTT TGAGAATGTT TGAGAATGTT TGAGAATGTT TGAGAATGTT AGAAATGTT AAGACATGCT AAGACATGCT
MGAS8232  ATCC700294 MGAS315 SSI-1 Manfredo MGAS8232  ATCC700294 MGAS315 SSI-1 SSI-1	GGAACCTTTT  451 CAGGACTATT CAGGACTATT CAGGACTATT CAGGACTATT CAGGACTATT CAGGACTATT TAAAGTGCTT TAAAGTGCTT TAAAGTGCTT TAAAGTGCTT TAAAGTGCTT TAAAGTGCTT ACCAATCTTA	ATCGTGCTTT ATCGTGCTTT ATCGTGCTTT ATCGTGCTTT ATCGTGCTTT ATCGTGCTTT ATCTTATGG ATTCTTATGG A	CAAGAAGCAA  CCAAGCTAAA CCAAGCTAAA CCAAGCTAAA CCAAGCTAAA CCAAGCTAAA CCAAGCTAAA GCTTGCCAGG GCTTGCCAGG GCTTGCCAGG GCTTGCCAGG GCTTGCCAGG GCTTTTGGACT CTTTTGGACT CTTTTGGACT CTTTTGGACT CTTTTTGACT CTTTTTGACT CTTTTTTTTTT	AAGAATTGCG  CGTAAGGGGA CGCAAGGGGA CGCAAGGGGA CGTAAGGGGA CGTAAGGGGA TAGTTATTTG GCCAGGTGG TGGCAGGTGG	CCAGCAATAC  500 AGAAAAAGCC  550 GTGGCGACGA GTGGCGACGA GTGGCGACGA GTGGCGACGA TGAGAATGTT TGAGAATGTT TGAGAATGTT TGAGAATGTT TGAGAATGTT TGAGAATGTT AGACATGCT AAGACATGCT AAGACATGCT AAGACATGCT
MGAS8232  ATCC700294 MGAS315 SSI-1 Manfredo MGAS8232	GGAACCTTTT  451 CAGGACTATT CAGGACTATT CAGGACTATT CAGGACTATT CAGGACTATT CAGGACTATT TAAAGTGCTT TAAAGTGCTT TAAAGTGCTT TAAAGTGCTT TAAAGTGCTT TAAAGTGCTT AACCAATCTTA ACCAATCTTA TATCAGTCAG TATCAGTCAG TATCAGTCAG TATCAGTCAG	ATCGTGCTTT ATCGTGCTTT ATCGTGCTTT ATCGTGCTTT ATCGTGCTTT ATCGTGCTTT ATCTTATGG ATTCTTATGG A	CCAAGCTAAA CCAAGCTAAA CCAAGCTAAA CCAAGCTAAA CCAAGCTAAA CCAAGCTAAA CCAAGCTAAA CCAAGCTAAA GCTTGCCAGG GCTTGCCAGG GCTTGCCAGG GCTTGCCAGG GCTTTTGGACT CTTTTGGACT CTTTTGGACT CTTTTGGACT CTTTTTGACT CTTTTTTTTTT	AAGAATTGCG  CGTAAGGGGA  CGCAAGGGGA  CGCAAGGGGA  CGTAAGGGGA  CGTAAGGGGA  TAGTTATTTG  TAGTTATTTG  TAGTTATTTG  TAGTTATTTG  TAGTTATTTG  TAGTTATTTG  TAGTTATTTG  TAGTTATTTG  GCAGGTGG  TGGCAGGTGG  TGGCAGGTGG  TGGCAGGTGG  TGGCAGGTGG  TGGCAGGTGG  TGGCAGGTGG  GCTAATCCTG  GTTAATCCTG  GCTAATCCTG	CCAGCAATAC  500 AGAAAAAGCC  550 GTGGCGACGA GTGGCGACGA GTGGCGACGA GTGGCGACGA TGAGAATGTT TGAGAATGTT TGAGAATGTT TGAGAATGTT TGAGAATGTT TGAGAATGTT TGAGAATGTT AGAAATGTT AAGACATGCT AAGACATGCT

# Figure 35 (continued)

ATCC700294 MGAS315 SSI-1 Manfredo MGAS8232	AGCTAAGGAG AGCTAAGGAG GGCTAAGGAG	CCTGACTTGA CCTGACTTGA CCTGATTTGA	TTTTACGAAC TTTTACGAAC TTTTACGAAC	AGCTCATGCC AGCTCACGCC AGCTCACGCC AGCTCACGCC AGCTCACGCC	ATTCCAGACA ATTCCAGACA ATTCCAGACA
ATCC700294 MGAS315 SSI-1 Manfredo MGAS8232	AGGTAAAAGT AGGTAAAAGT AGGTAAAAGT	GATGTTTGAC GATGTTTGAC GATGTTTGAC	AAAGAATTTG AAAGAATTTG AAAGAATTTG	CTGAAAATGA CTGAAAATGA CTGAAAATGA CTGAAAATGA CTGAAAATGA	TATTTGGAAA TATTTGGAAA TATTTGGAAA
ATCC700294 MGAS315 SSI-1 Manfredo MGAS8232	CATTTTACGG CATTTTACGG CATTTTACGG	CAGTCAAGGA CAGTCAAGGA	AGGGAAAGTC AGGGAAAGTC	TATGATTTGG TATGATTTGG TATGATTTGG TATGATTTGG TATGATTTGG	ACAATACCCT ACAATACCCT ACAATACCCT
ATCC700294 MGAS315 SSI-1 Manfredo MGAS8232	GTTTGGCATG GTTTGGCATG GTTTGGCATG	AGTGCTAAAT AGTGCTAAAT AGTGCTAAAT AGTGCTAAAT AGTGCTAAAT	TGAACTACCC TGAACTACCC	AGAAGCCTTG AGAAGCCTTG AGAAGCCTTG AGAAGCCTTG AGAAGCCTTG	GACACCTTAA GACACCTTAA GACACCTTAA
ATCC700294 MGAS315 SSI-1 Manfredo MGAS8232	CACAGCTTTT CACAGCTTTT CACAGCTTTT	TGACCACGTG TGACCACGTG TGACCGCGTG TGACCACGTG	GGAGATCATC GGAGATCATC GGAGATCATC	CGTAA CGTAA CGTAA	
Figure 36					
ATCC700294 MGAS315 SSI-1 Manfredo MGAS8232	MIKRCKGIGL MIKRCKGIGL MIKRCKGIGL	VLMAFFLVAC VLMAFFLVAC ALMAFFLVAC	VNQHPKTAKE VNQHPKTAKE VNQHPKTAKE	TEQQRIVATS	50 VAVVDICDRL VAVVDICDRL VAVVDICDRL VAVVDICDRL VAVVDICDRL
ATCC700294 MGAS315 SSI-1 Manfredo MGAS8232	NLDLVGVCDS NLDLVGVCDS NLDLVGVCDS	KLYTLPKRYD KLYTLPKRYD KLYTLPKRYD	AVKRVGLPMN AVKRVGLPMN AVKRVGLPMN	PDIELIASLK PDIELIASLK	PTWILSPNSL PTWILSPNSL
ATCC700294 MGAS315 SSI-1 Manfredo MGAS8232	QEDLEPKYQK QEDLEPKYQK	LDTEYGFLNL LDTEYGFLNL LDTEYGFLNL	RSVEGMYQSI RSVEGMYQSI RSVEGMYQSI	DDLGNLFQRQ DDLGNLFQRQ DDLGNLFQRQ	150 QEAKELRQQY QEAKELRQQY QEAKELRQQY QEAKELRQQY

# Figure 36 (continued)

	151				200
ATCC700294	ODYYRAFQAK	RKGKKKPKVL	ILMGLPGSYL	VATNQSYVGN	LLDLAGGENV
MGAS315	-		ILMGLPGSYL	VATNQSYVGN	LLDLAGGENV
SSI-1	ODYYRAFOAK	RKGKKKPKVL	ILMGLPGSYL	VATNQSYVGN	LLDLAGGENV
Manfredo	ODYYRAFQAK	RKGKKKPKVL	ILMGLPGSYL	VATNQSYVGN	LLDLAGGENV
MGAS8232	ODYYRAFOAK	RKGKKKPKVL	ILMGLPGSYL	VATNQSYVGN	LLDLAGGENV
	-				
	201				250
ATCC700294	YOSDEKEFLS	ANPEDMLAKE	PDLILRTAHA	IPDKVKVMFD	KEFAENDIWK
MGAS315	YOSDEKEFLS	VNPEDMLAKE	PDLILRTAHA	IPDKVKVMFD	KEFAENDIWK
SSI-1	YQSDEKEFLS	VNPEDMLAKE	PDLILRTAHA	IPDKVKVMFD	KEFAENDIWK
Manfredo	YQSDEKEFLS	ANPEDMLAKE	PDLILRTAHA	IPDKVKVMFD	KEFAENDIWK
MGAS8232	YQSDEKEFLS	VNPEDMLAKE	PDLILRTAHA	IPDKVKVMFD	KEFAENDIWK
	251				294
ATCC700294	HFTAVKEGKV	YDLDNTLFGM	SAKLNYPEAL	DTLTQLFDHV	GDHP
MGAS315	HFTAVKEGKV	YDLDNTLFGM	SAKLNYPEAL	DTLTQLFDHV	GDHP
SSI-1	HFTAVKEGKV	YDLDNTLFGM	SAKLNYPEAL	DTLTQLFDHV	GDHP
Manfredo	HFTAVKEGKV	YDLDNTLFGM	SAKLNYPEAL	DTLTQLFDRV	
MGAS8232	HFTAVKEGKV	YDLDNTLFGM	SAKLNYPEAL	DTLTQLFDHV	GDHP